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ENVIRONMENTAL IMPACT STATEMENT CONFERENCE

February 22-23, 1979

REGION IV

U. S. ENVIRONMENTAL PROTECTION AGENCY

Atlanta Civic Center
395 Piedmont Avenue
Atlanta, Georgia 30308

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Proceeding of EIS conference held at the Atlanta Civic Center 22-23 February 1979. Ms. Jane Yarn, Member, Council on Environmental Quality, who discussed the fallacy that environmental regulation is a prime contribution to inflation. Additionally, presentations were given on implementing the recent CEQ Regulations, wetland protection, Georgia's endangered species program, and air quality procedures. The Workshops included Environmental Impact Statement Review Procedures (Gerald Miller and Doris Kirby); Information - The Backbone of the Environmental Impact Statement (Carolyn Mitchell); Wetlands and The Environmental Impact Statement (E.T. Heinen), and Environmental Impact of Cultural Practices on Natural Ecosystems (Art Benke and Tom Simpson).

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ENVIRONMENTAL IMPACT STATEMENT CONFERENCE

Thursday, February 22, 1979, Room 201

Atlanta Civic Center
395 Piedmont Avenue
Atlanta, Georgia 30308

Page No.		
1	Welcome	John C. White Regional Administrator EPA Region IV, Atlanta
3	Keynote Speech	Jane Yarn Council Member CEQ, Washington, D. C.
	Wetlands	E. T. "Red" Heinen Chief, Ecological Review Branch EPA Region IV, Atlanta
8	Georgia's Endangered Species Program	Mary Ann Young - Ron Odom Endangered Species Specialists Game and Fish Division Department of Natural Resources State of Georgia
32	Air Issues	J. Ronnie McHenry Chief, Trends/ Analysis and Program Coordination Section
34		Lew Nagler Regional Meteorologist EPA Region IV, Atlanta
	Social Hour	Crystal Ballroom Hilton Hotel

Friday, February 23, 1979, Room 104

Page No.	Room	Workshops	Chairperson
37	104A	I Environmental Impact Statement Review Procedure	Gerald Miller - Doris Kirby EIS Review Section and Program Representatives, EPA Region IV, Atlanta
44	104B	II Information: The Backbone of The Environmental Impact Statement	Carolyn W. Mitchell, Head Librarian EPA Region IV, Atlanta Jim Dodd, Georgia Institute of Technology, Atlanta, Georgia Saul Herner Information Resources Press Washington, D. C. Larry Wills Claude Terry Associates Atlanta, Georgia J. G. Vann Science & Technology Research Center, Research Triantle Park, North Carolina
60	104C	III Wetlands and the Environmental Impact Statement	E. T. "Red" Heinen and Staff Chief, Ecological Review Branch EPA Region IV, Atlanta
65	104D	IV Environmental Impacts of Cultural Practices on Natural Ecosystems	Arthur Bienke Georgia Institute of Technology Atlanta, Georgia Tom Simpson - Chuck Zimmerman Dames & Moore Consultants Atlanta, Georgia

Break	
Workshops I, II, III, IV Continued Implementing the CEQ Regulations	Michael Kane Staff Member, CEQ Washington, D. C.
Closing Remarks	Shep Moore and John Hagan EIS Branch, EPA Atlanta

Rooms 104A, 104B, 104C and 104D will be available for any groups wishing to meet in the afternoon.

REMARKS BY JOHN C. WHITE, EPA REGIONAL ADMINISTRATOR
TO THE ENVIRONMENTAL IMPACT STATEMENT CONFERENCE
ATLANTA, GA, FEBRUARY 22, 1979

Good afternoon and welcome to Atlanta. This Conference on Environmental Impact Statements promises to be a good one. We are very pleased to have CEQ Council Member Jane Yarn with us to deliver the Kenote Address.

As you probably know, the new regulations to implement the National Environmental Policy Act are intended to accomplish three principal objectives: reduce paperwork, expedite processing requirements, but at the same time to produce a better vehicle for making decisions. Regulations will replace the previously used guidelines and will be uniformly applicable to all Federal agencies.

You will be hearing a lot about "scoping" today and tomorrow. The Regulations establish a scoping procedure to insure that important issues are selected for attention at the outset of facility planning.

We are happy to have in attendance representatives of the 25 Federal agencies from which we received impact statements this past year. State and local governments are also represented. Coast Guard personnel from as far away as Alaska and Hawaii are here. They held their own separate meeting earlier today. Also here are some members of Region 4's Citizen Advisory Council composed of some of the leading environmentalists in the southeast.

And, one more comment about our invitees. We asked representatives from the various Federal agency Headquarter's staffs to join us. These are the people who will write the implementing procedures. We wanted them to get the regional perspective first.

Now it's my pleasure to introduce the Keynote Speaker. It would be difficult to find someone more eminently qualified for her present position than Jane Yarn. She has led the fight for a better environment from Georgia to Washington with some notable successes. I will not attempt to list all her accomplishments, but I do want to mention a few.

As founder and president of SAVE, i.e., Save America's Vital Environment, Mrs. Yarn was instrumental in getting passed into law the reorganization of State government during the Carter Administration as well as many pieces of environmental legislation. The formation of a strong Environmental Protection Division in Georgia was due, in large part, to her efforts.

Mrs. Yarn has served as Vice-chairman of the Nature Conservancy. . . She worked to have Congress include the Bartram Trail in the National Trails Act. . . She served as Chairman of the Charles A. Lindbergh Fund, an organization which awards Grants to individuals who achieve a better balance between technology and the environment. She has authored many papers and publications and has been honored by the foremost organization in the nation for her work in conservation and protection of the environment.

Mrs. Yarn owns and manages a farm and lives with her husband, Dr. Charles P. Yarn, Jr., in northwest Atlanta.

It is a distinct honor for me to present Mrs. Jane Yarn, Member, Council on Environmental Quality.

KEYNOTE SPEECH

JANE YARN
PRESIDENT'S COUNCIL ON ENVIRONMENTAL QUALITY

WASHINGTON, D. C.

It's a pleasure to be here today to participate at this Conference among so many friends. And it's a particular pleasure to be able to discuss with you some of the concerns that I know CEQ and EPA share together.

Perhaps no agency in government is more concerned than EPA with the present debate over the role of regulations in our social affairs. We at CEQ have taken special note of this issue as it affects environmental quality and as it relates to the President's well placed concern about inflation.

I certainly support every effort to cure this economic cancer...but I am dismayed by the extent to which officials in the government and in private industry have turned to an easy attack on health, safety, and environmental regulations as a prime contributor to inflation.

This is not the first time that environmental regulations have been used as a scapegoat for economic ills rooted deeply in our society or stemming from outside causes. You may remember, for example, that when the Arabs imposed their oil boycott, and we were looking for answers to our energy crisis, a relaxation of environmental safeguards was urged as the fastest solution.

Thanks to strong support from environmentalists across the country, the government was not stampeded on the energy issue. But it wasn't long before critics found a new reason to ease up on environmental laws: unemployment. It certainly is true that air and water pollution laws have closed down some plants whose facilities were too obsolescent or marginally profitable to make compliance worthwhile. So far, according to an "early warning system" maintained by EPA, something like 22,000 men and women have lost jobs through plant-closings.

But on the other hand, environmental laws passed by the Federal government since 1970 have created more than 600,000 jobs in fields ranging from the monitoring of water quality to the engineering and installation of stack-scrubbers. Moreover, these jobs were created at a time of excess industrial capacity and sluggish consumer demand...a time, in short, when good capital-investment opportunities were rare for industry. Without the jobs and investment mandated by pollution controls over the past years, our gross national product would have been lower, and our unemployment higher than they actually were.

Now today -- having failed to make persuasive anti-control arguments out of the energy crisis or unemployment -- the critics are trying to use inflation.

There is no question that environmental regulation and protection does add to the cost of doing business. So far, however, those costs are well within the ability of our economy to absorb. According to a study we know of -- Federal pollution controls will add an average of three to four-tenths of one percent to the Consumer Price Index annually for the period 1970-1983. The figure this year is five-tenths of one percent.

The Council on Wage and Price Stability quotes a slightly higher figure: seven-tenths of one percent. There is not much difference between their figure and ours. But even assuming that their number is right -- it indicates how slight an effect on inflation would be realized by cutting back on environmental controls. Let us say, for example, that we cut back environmental controls by 20 percent...a really substantial reduction. Today the Consumer Price Index is running at an annual rate of eight percent; if we did reduce the impact of environmental controls by 20 percent, therefore, we would have a CPI of 7.9 percent instead of 8 percent.

I doubt that such a drop would put any more steaks into the average family's shopping-cart, or reassure the Gnomes of Zurich about the soundness of the dollar.

On the other hand, we have to ask about the bad effects of relaxing environmental protection. We know, in a general way, that efforts to protect the environment yield benefits in public health, reduced property damage, increased agricultural and resource yields, and enhanced recreation. Unfortunately, we have not made the continuing, precise study of these effects needed to combat our critics. . .

But every now and then, some unusual event brings these other effects to our attention. In 1952, London experienced a five-day episode of air pollution. The English government estimated that the pollution was responsible for 4,000 deaths; during those five days 1,100 patients were admitted to London hospitals daily -- 48 percent more than normally.

More recently, Doug Costle of EPA noted a recent article that stated death-rates in San Francisco dropped 13.4 percent during the 1973-74 oil embargo as compared with the same period for the four previous years; the explanation appears to be reduced exposure to pollutants from auto exhausts. Scientists have noted reductions in fish and tree growth in Scandinavia and in our own Adirondacks...apparently as a result of acid rains caused by auto emissions. And such incidents as the Kepone disaster in Hopewell, Virginia, and the destruction of the Amoco Cadiz off the

coast of Brittany help us gauge the costs of environmental disaster that might have been prevented by strict regulation.

Certainly we must make every effort to ensure that environmental and health regulations are not necessarily expensive, and that they take economic impacts into account. As Yale economist Dr. James Tobin comments, "We cannot pollute ourselves into prosperity." But as a matter of fact almost all Federal environmental laws require such an economic impact analysis now. If we are to control and, hopefully, trim back the current inflation rate, we shall have to look elsewhere than an environmental regulation.

It well may be that our current inflation is an entirely new animal in our experience, one that can evade all the nets thrown out by our traditional economics. As the Council on Wage and Price Stability has noted, excess consumer demand -- demand exceeding supply -- played a prominent role in every other inflationary episode since World War II. But this one has "persisted in the face of the worst recession" since 1945. Moreover, this inflation is not restricted to the U. S. or to any single region; on the contrary, it is common throughout the industrial world.

Why? If this inflation is different, what makes it so?

Lester Brown, Director of the Worldwatch Institute, offers a provocative suggestion. "During the Seventies," he writes, "efforts to manage inflation have been consistently less successful than in the past, in part because new sources of inflation are emerging. In simplest terms, the new inflationary forces arise from the claims on the earth's resources of a continuously expanding global economy. . . at some point biological systems begin to deteriorate; oil wells begin to go dry; high-grade, easily accessible mineral reserves are used up; and there is no more fertile, well-watered cropland that can easily be brought under the plow. As the demand for the more scarce resources begins to outstrip supplies, scarcity-induced price rises result.

The National Center for Economic Alternatives reached a similar conclusion in its report last year on what it called "the new inflation". In comparison with the immediate post-war period, for the final quarter of this century. . . there is widespread expert agreement that the long-term outlook for global energy, food, and other resources is one of increasing prices. Similar agreement exists about longer-term land and capital costs which impact on housing prices. In the context of the foreseeable upward slope to the cost of fundamental resources, the frequency of sudden, unexpected price "jolts" in food, energy, and other critical areas can only increase -- especially at the top of the business cycle, when high demand puts even greater pressure on global resource supplies.

These observations confirm my intuitive conviction that for decades we have been benefiting from cheap prices based on our undervaluing of natural goods. Refusing to confront the obvious truth that at some point our oil resources would run out, and that other nations would begin making their claims on international supplies, we have designed a defused society accessible only to the automobile . . . a society whose expressways and sprawling suburbs we cannot undo. Resource-waste is built into our lives. And for those expressways, suburbs and shopping centers, we ripped up an average of 2,000 acres of land every day between 1960 and 1970. Lax safety rules to protect miners and the lack of any control on the restoration of strip-mined land made coal cheaper in economic terms than it is in human terms . . . and helped retard our recognition of the need for alternate energy supplies. Forest products undervalued because of excessive harvesting on public lands blinded us to the need for conservation . . . not only in our forests, but also in the design of homes that could have been much more materials-efficient and energy-efficient, if we had put our minds to those problems in the first place.

Within the last decade we have begun to get a handle on those problems through an informed environmentalism. But now that our wasteful policies of decades have come home to roost, environmentalism itself is being blamed as the cause of our economic problems. If those of us who believe that a spendthrift attitude toward natural resources is the real cause and do not continue to oppose the anti-regulation crowd, we shall simply let our nation in for another round of wasteful spending.

This latest attack on environmental protection is, then, more than a brush fire. No matter what our individual concerns in the environmental area, we've all got to focus on this one. What has been declared on the very policies that would bring us back to sanity . . . and if we allow our opponents to win it, it will be a most expensive war indeed -- not only for our nation, but for our earth.

Let me conclude these remarks not simply by raising this threat and challenge but by citing some new and encouraging evidence that public interest in wise use of our natural resources is broad and strong. Pressure for changes in the ways we invest in and use the environment comes not from a small band of zealots but from the entire spectrum of disciplines and professions -- people who are willing to pay more in the short run to save resources in the long run.

A poll conducted by Resources for the Future last year reveals the following: In response to the question, "Do you feel your family benefits from efforts to protect and expand national parks and wilderness areas?", 87 percent of those polled felt that their families did benefit.

Asked if they thought their families benefited from efforts to protect birds and animals, again 87% felt that their familes benefited. The poll found that 60 percent of the people were active in or sympathetic to environmental affairs. Only 6 percent were unsympathetic.

Bolstering these results was the telephone survey conducted by Opinion Resource Corporation in 1975 and repeated in 1977. Asked, "Are you willing to pay higher prices or taxes to improve air and water quality?", in 1975 60 percent said "yes" but in 1977, the percentage rose to 68 percent.

In the face of these encouraging although frankly not surprising results, it is vitally important to respond to the public with environmental policies that are not only strong but efficient . . . effective and free from unnecessary red tape. CEQ's most recent response to this need is our NEPA Regulations which we developed after a long and fruitful public participation process. We believe that these new regulations will go a long way toward making Federal agencies focus effectively on the real and significant impacts of and alternatives to their proposed actions having environmental importance. Energetic implementation of these regulations by EPA, which is a topic you will be concerned about throughout this Conference, is particularly critical not only because of the significant environmental EPA policies that will be involved, but also because of the exemplary role that EPA must play in carrying out those policies.

It is gratifying and fitting that you have convened this Conference at this time. We at CEQ certainly wish you well in translating your regulations into effective procedures that will guide your actions for many years to come. We look forward to helping you in making this effort in the months ahead.

Georgia's Endangered Species Program
Protected Plants

Mary Anne Young, Staff Specialist
Georgia Department of Natural Resources

The late 60's and early 70's saw a new public awareness of environmental concern sweep the country. State and federal legislation and those programs which this legislation spawned, were a direct result of this awakening. Suddenly the Nation became concerned with clearer air, cleaner water and better management of our natural resources, including protection of endangered and threatened species. Georgia was caught up in this environmental movement. In terms of endangered species, we were one of the first states to pass legislation for the protection of both endangered wildlife and endangered plants. This resulted in the viable and progressive endangered species program Georgia has today.

Federal endangered species legislation has been on the books since the 1960's, in the form of the 1966 Endangered Species Preservation Act and the 1969 Endangered Species Conservation Act. The most significant legislation however, came in the form of PL 93-205, the Endangered Species Act of 1973. This law broadened the scope of federal involvement in endangered species in several ways:

(1) It provided for the conservation of "ecosystems" on which endangered and threatened species depend;

(2) It provided for conservation programs for endangered and threatened species;

(3) It provided for incentives to states through federal assistance programs; (Sec. 6)

(4) It provided for Interagency Cooperation; (Sec. 7)

(5) It began a review of the status of plant species. (Sec. 12)

The first endangered species legislation in Georgia was also passed during 1973. The Endangered Wildlife Act and Wildflower Preservation Act of 1973 provided the impetus for our State's endangered species efforts. Provisions in the State legislation included:

(1) That the DNR inventory, within two years, all species of wildlife and plants which it may determine to be rare, unusual, or in danger of extinction, and designate these as "protected species";

(2) It authorized DNR to promulgate rules and regulations for the protection of endangered and threatened species on public land.

Immediately after the passage of this legislation, the Department of Natural Resources compiled a list of "protected species" based on recommendations of experts in various fields. After additional status investigations of these species, the Board of Natural Resources unanimously adopted the recommended list as presented by staff biologists. Rules and regulations for the protection of endangered, threatened, rare, and unusual species were also adopted at this same Board meeting. In general, the rules and regulations provided for:

(1) the criteria for determination of protected species;

(2) procedures for modifying the state list;

(3) land acquisition for endangered species;

(4) prohibited acts and made any violation a misdemeanor; and

(5) special purpose permits.

The passage of the federal legislation had a significant impact on Georgia's program. Under Section 6 of the Act, a state could qualify for matching funds for planning and implementation of endangered wildlife programs if certain criteria were met. In October of 1978, the state of Georgia entered into a cooperative agreement with the Federal Government.

As stated previously, Georgia offers protection to both endangered wildlife and plants. Unfortunately, the plant program is not federally funded, since the language of the 1973 federal Act was not interpreted to mean that plants could be included for cooperative funding along with wildlife. However, since 1973, many states have become motivated to initiate plant programs or, as in the case of Georgia, were continuing the development and implementation of a current program. Therefore a movement began to amend Section 6 of the 1973 Act so that federal monies could be available to states to continue their planning for plant protection. In the summer of 1973, during reauthorization, Georgia was a leader in the pursuit of a specific plant amendment to Section 6 of the federal Act. Letters were sent to Congress from Georgia's Department of Natural Resources, both from the Director of the Game and Fish Division, and the Commissioner of the Department. At present, the Fish and Wildlife Service is developing rules and regulations pursuant to this amendment. When these are finally adopted, Georgia hopes to qualify immediately.

Although not federally funded, Georgia's protected plant program enjoys a high profile. Many aspects of the program contribute to its present success. Among these are the fact that the list of plant species protected under Georgia law is both credible and manageable.

The 58 plant species listed are the result of careful scrutiny of proposed species. Unique to our program is the full support of the State's DNR Law Enforcement Section. In-service training sessions have been conducted with all law enforcement administrators and field personnel. These individuals are vital to the program not only in their capacity as conservation rangers, but because they represent trained individuals in the field who serve as sources of information and feedback. All persons who take the time to learn the facts are important in this way, and our status and range monitoring of protected plants is dependent upon alert observers.

In addition to law enforcement, training sessions have been conducted with other Departmental field personnel, including our wildlife biologists and personnel in Parks and Historic Sites. We consider public education vital also and endeavor to keep the public up-to-date with our program through publications and other mechanisms.

A primary concern of the plant program is in the maintenance and recovery of endangered or threatened plants. To this end, we are engaged in identification and management of sites on which protected species grow. We are also developing cooperative programs with outside agencies to facilitate recovery efforts.

At present we are completing negotiations with the U.S.D.A. Forest Service on a Memorandum of Agreement which involves recovery efforts for plant species appearing on both the State and Federal lists. This cooperative effort will include seed processing services for protected plants as conducted by the Forest Service, and the replanting of such seeds or seedlings as conducted by the Department. Another negotiation is underway with the Callaway Gardens Department

of Horticulture. Under this Agreement, Callaway Gardens would serve to provide active gene pools of protected plants some of which would be available for public education. Other agencies and institutions are presently expressing interest in cooperating with Department in efforts involving plant recovery.

The concept of addressing endangered or threatened species is not new to applicants for federal funds who are aware of the regulations in regard to federally listed species, particularly of wildlife. All of the wildlife the State protects, except 3 species, are listed federally. Therefore, when an environmental inventory has addressed federally protected species, the State concern will be simplified automatically. What is new, however, is the list of protected plants. This is, for the most part, a state list since only two plants which are endangered in the state come also under federal jurisdiction. These are the Hairy Rattleweed, Baptisia arachnifera, found in pine-flatwoods in the Georgia coastal plain, and the Persistent Trillium, Trillium persistens, located in extreme Northeast Georgia in association with the Tullulah-Tugaloo River Systems. (Approximately a dozen other plant species are federally proposed, while several more are under review.) Applicants for federal funds should be aware of these overlaps in state and federal programs.

We do not see our endangered plants or wildlife list or any other list, as a sacrosanct entity, but rather a consolidation of available information on life forms which demand immediate attention. Our long term goal is to delist species, not list them. We aspire to keep the door of communication open between Endangered Species Preservation and social or political issues, and we are careful to make sure only accurate

information is disseminated.

Unfortunately, the interest in endangered species has also precipitated much misconception regarding both State and Federal programs. In Georgia, we attempt to make it clear that no endangered species program was intended to stop progress or halt development. Inherent in our efforts to work with other interests is our involvement with the A-95 Review Process. Although the 1973 State laws do not have a "Section 7", i.e., a section addressing "critical habitat", we encourage, through a set of Administrative Guidelines, that site surveys be conducted for Protected Species. The guidelines are directed at the applicants for federal grants, loans, permits, etc. and provide policy for the Department of Natural Resources which performs the state-level reivews. The objectives in issuing the Guidelines are twofold. One is to address the protected species issue early in the planning process so that the impact of the project on such species can be considered. Secondly, the purpose is to facilitate the entire review process by clearly spelling out what the state reviewers for protected species consider adequate when evaluating a planning document, a facility plan, and environmental impact statement, etc. The guidelines describe the criteria for an adequate protected species survey. Hypothetical surveys for vegetation and wildlife are included as examples.

During 1978, the State Clearinghouse disseminated the Guidelines to all Area Planning and Development Commissions. In addition, they are sent by DNR's Environmental Protection Division in response to individual requests. Also planned is the attachment of the protected species Guidelines to an EPD publication entitled: Guidelines for the Preparation of the Environmental Inventory and Environmental

Assessment 201 Facilities Plan. These will go primarily to consulting firms.

Since the issuance of the Guidelines, the state reviewers for protected species have found a significant improvement in the quality of environmental assessments and inventories. We would like to attribute this to the establishment of communication. We know that support from the Clearinghouse has facilitated this progress since interim comments from the Clearinghouse to applicants include our Protected Species concerns.

In Georgia, we are proud of our efforts toward the preservation of endangered species and their habitats. We are aware, however, that our efforts have only begun. Ron Odom, the staff specialist for endangered wildlife, will discuss aspects of the state's endangered wildlife program.

An Overview of Georgia's Endangered Wildlife Program

by Ron R. Odom
Endangered Wildlife Specialist
Georgia Department of Natural Resources

There has been an unprecedented explosion of environmental awareness and concern in this country, brought about, I think, by the rate of change imposed upon us by recent technological progress. Today every citizen in this country is very much concerned about what other people do, or plan to do, to the environment. In an earlier day perhaps, we may have dismissed this overwhelming concern as emotionalism. Today, however, I think we realize that emotion is simply the first step in a selective process of attention - giving which ultimately leads to understanding and then action. Certainly this has been the case with endangered species programs. It was a direct result of these emotional concerns that state and federal endangered species legislation was proposed and implemented; and also that we have progressed as far as we have in our endangered species/non-game efforts.

It is appropriate that the states, including Georgia, play a major role in wildlife protection, management, and research for it is the states that ultimately must administer two-thirds of the total land area of the nation. The states also have the primary responsibility for the protection and management of resident wildlife.

The state of Georgia formally initiated endangered species conservation efforts soon after the enactment of the 1973 federal and state endangered species legislation. The Department of Natural Resources involvement began with the sponsoring of the 1974 endangered species workshop at Fernbank Science Center in Decatur. This original workshop was organized for the purpose of drafting a "citizens list" of endangered,

threatened, rare and unusual plant and animal species in Georgia. Experts from Georgia and neighboring states gathered for the purpose of compiling this original working list which would ultimately be used by the Department of Natural Resources in drafting the official state list. Approximately 159 species of vertebrates were listed as either endangered, threatened, rare or unusual, or status undetermined.

After initial status investigations of those species on the Fernbank list, the Board of Natural Resources in March, 1975 unanimously adopted the recommended list of protected plants and animals as presented by staff biologists. Georgia presently lists 23 species of wildlife on our official state list. Also adopted at this meeting were Rules and Regulations For the Protection of Endangered, Threatened, Rare, or Unusual Species which has already been discussed. Among other things the Rules and Regulations provided a mechanism for listing and delisting species with the appropriate review processes. Species may be nominated to the list, or taken off the list, by anyone who can provide scientifically valid data to support their contentions. Presently, the Department of Natural Resources is completing status reviews of the American alligator and the gopher tortoise in Georgia and plan to go to the Department of Natural Resources Board with recommendations next month.

With regard to the 1973 federal legislation Section 6 is of particular significance to Georgia's program. Section 6 provides for cooperative agreements with states that meet minimum criteria requirements. Section 6 essentially provides for funding for acceptable state endangered species programs. After considerable "beefing up" of our laws we were able to meet federal standards which included:

a) having the authority to conserve resident endangered species.

b) establishing the authority to conduct status and requirement investigations.

c) having the authority to establish programs, including the acquisition of land or aquatic habitat, for the conservation of endangered species.

d) providing for public participation in the designation of endangered and threatened species.

The state of Georgia entered into a Cooperative Agreement with the Fish and Wildlife Service in October, 1978. The agreement enabled the Department of Natural Resources to obtain federal funding on a 2/3 to 1/3 matching basis. In other words, for every dollar put up by the State, two are provided by the Federal Government. This agreement and source of funding enabled the Department of Natural Resources to initiate a comprehensive, meaningful program for our endangered and threatened wildlife species. Prior to that time our endangered species efforts were comparatively token in nature.

Rather than staff a new section at that time our Department chose to handle the bulk of our endangered species efforts through contracting. Soon after signing the cooperative agreement we contacted competent researchers throughout Georgia advising them of Department priorities and of the new funding available for contract studies on endangered species research and surveys and asking for project proposals. Numerous proposals were received from the field, and finally, after careful screening, ten projects were approved for funding. All of these are now well underway. In addition, six other projects, to be carried out by the Department, were approved and are in various stages of implementation.

Each individual contractor is required to provide the 1/3 matching funds, either through in-kind services or other non-federal sources. In essence then we are currently operating our entire state endangered species program with a very small amount of state expenditures. The program, as operated now, is practically self-supporting.

CURRENT STUDIES

Study Title	Contractor
Status Determination of Selected Vertebrates in Georgia	Universiry of Georgia Museum of Natural History

This study arose from data, or lack of data, generated at the 1974 endangered species workshop at Fernbank. The Conference underscored the lack of good population status data for many of Georgia's vertebrates. This project should establish a firm foundation on which to build a more comprehensive, endangered species/non-game program.

Objectives:

a) to update and revise the state protected species list and to provide the Department of Natural Resources with a comprehensive status report on the 159 species of vertebrates on the Fernbank list.

b) parameters which will be addressed in the study are:

1) distribution and density

2) systematics and variation

3) natural history

4) status

5) evaluation of status and recommendations

Study Title	Contractor
A Systematic Study of Geomys colonus	University of Georgia Museum of Natural History

There has been controversy among researchers as to whether the colonial pocket gopher (Geomys colonus) is really a distinct species, or whether it is simply a variant population of Geomys pinetus, which is very common in the area. This study will attempt to provide genetic answers to this question.

Objective:

a) to determine, primarily through electrophoresus techniques, the systematic position of G. colonus with respect to surrounding populations of G. pinetus.

Study Title	Contractor
The Status and Preservation of the Colonial Pocket Gopher	University of Georgia School of Forest Resources

Available information on the colonial pocket gopher is very scarce. The species was originally described around the turn of the century and little has been done with the species since then. This particular study will provide basic life history information on the species necessary to identify possible limiting factors.

Objectives:

a) to determine the size and location of each colony.

b) to estimate population parameters associated with each colony including sex ratios, age distribution, reproductive capabilities, and trends in abundance.

c) to describe occupied habitat.

d) to determine the impact of future development in this area on the species.

e) to determine the feasibility of establishing new colonies nearby.

The colonial pocket gopher was involved in the only confrontation between a listed species and environmental project since our program began four years ago. I don't think any real confrontation ever existed - at least not until the problem was played up as a crisis situation by the news media.

Star Route 40, in Camden County, was scheduled for widening soon after we discovered the small colony of colonial pocket gophers. This highway just happened to pass through the edge of some of the gopher's habitat - and possibly some gophers if they were not moved.

To make a long story short, we worked very closely with the Department of Transportation, and I.T.T. Rayonier Corporation who owns the land, and relocated 4 problem animals to a suitable area nearby, where they now appear to be thriving. Construction of the road was continued after our relocation efforts.

This, I think, is an example of what can be accomplished through successful communication and cooperation among agencies. This example underscores the basic philosophy of our program in Georgia - that of continued progress, but with appropriate planning and consideration for the wildlife resource. In most instances where alternatives are sought for controversial projects that conflict with the wildlife resource, they invariably can be found - in spite of what the media may think.

Although we have a number of sea turtles on our state list, the loggerhead (Caretta caretta) is the only one that nests on our coastal beaches. Loggerhead populations have declined over the years because of a number of factors. Habitat loss is at the head of the list of limiting

factors. Other turtle losses are due to severe nest predation on the beaches and drownings caused by shrimp trawlers.

Federal and state legislation has attacked the habitat problems while the National Marine Fisheries Service is conducting research on ways to minimize losses from shrimpers. Our efforts in Georgia are directed toward nesting-predation problems on the beaches. We currently have three such projects under contract.

Study Title	Contractor
Investigation of Hatchery Techniques for Propagation of Loggerhead Sea Turtles in Georgia	Savannah Science Musuem Wassaw Island

Objectives:

a) publish a field manual on hatchery techniques and expected successes.

b) to increase the percent of loggerheads hatched successfully from Wassaw Island Hatchery.

c) to determine the percent of turtles hatched successfully under natural conditions on Wassaw Island.

Study Title	Contractor
Ossabaw Island Loggerhead Sea Turtle Conservation and Research Program	Ossabaw Foundation

Objectives:

a) to improve current loggerhead management techniques on Ossabaw Island.

b) to improve and continue loggerhead hatchery operations on Ossabaw Island.

c) to gather data on nest predation and devise new methods of nest protection.

For years now programs have essentially been operating independently with only token efforts to coordinate and compile data with regional or state-wide perspective. This next project will insure that all data collecting is coordinated through one clearing house and that interpretation of data will no longer be on a piecemeal basis.

Study Title	Contractor
The Coordination of Research Efforts Involving Nesting Female Loggerheads on Georgia's Coastal Islands	University of Georgia Institute of Ecology

Objectives:

a) to advise the state on the current status of research efforts and research needs relating to sea turtles.

b) to develop communication and coordinate research efforts among the various tagging programs in the state.

c) to act as consultant to the various research and tagging programs in the state, providing statistical treatment and computer analysis of data.

d) to provide logistical support in the following areas:

1) development, purchase, and distribution of flipper tags to researchers.

2) administration of a statewide tagging program, including computerized coordination of tag numbers and the paying of rewards.

3) accessibility to computer facilities at realistic prices.

e) to provide a means for analysing available data with an overall statewide perspective.

f) to prepare a major report on the status of sea turtle research in Georgia.

The gopher tortoise (Gopherus polyphemus) is found locally throughout the coastal plain of Georgia, occurring primarily on the sandhill regions. Although the gopher tortoise is not currently listed by the State of Georgia its status has been under review by the Department of Natural Resources. Results of the evaluation will be available soon.

Habitat loss and reported over-harvest are thought to be associated with population declines. Our gopher tortoise studies are designed to identify and measure some of these limiting factors and to provide basic life history information.

Study Tit	Contractor
The Gopher Tortoise - Distribution, Ecology and Effects of Forest Management	International Paper Company

Objectives:

a) to detemine present range in Georgia.

b) to determine local population density, reproductive rate, mortality factors, and home ranges and burrow characteristics used by various sex and age classes.

c) to designate seasonal food requirements, nutrition, and essential habitat components.

d) to develop a functional census technique.

e) to determine the impact of forest management on populations.

f) to investigate the feasibility of establishing gopher populations in altered sandhill habitats.

The indigo snake (Drymarchon corais couperii) occurs primarily throughout southeast Georgia, associated with basically the same sandhill habitat that is occupied by the gopher tortoise.

The indigo snake was added to both the federal and state lists in 1978 as a threatened species. Habitat losses, and over-collecting are thought to be primarily responsible for their decline in numbers. Efforts by Auburn University will identify key habitat areas throughout the state and will locate major indigo populations.

Study Title	Contractor
Distribution of the Indigo Snake in Georgia	Auburn University

Objectives:

a) to survey the occurrence and distribution of indigo snakes in Georgia.

b) to gather information on the amount of suitable habitat currently inhabited by indigo snakes in Georgia.

The red-cockaded woodpecker (Picoides borealis) is a very small bird - associated with tracts of mature or overmature pine timber, primarily in South Georgia. Red-cockaded woodpecker populations have declined drastically over the years because of habitat loss. They require overmature pines for nesting and current timber management practices favor short-term rotation - in other words, most timber today is harvested before it ever gets old enough to be used by red-cockaded woodpeckers.

Study Title	Contractor
The Status and Distribution of the Red-cockaded Woodpecker	Tall Timbers Research Station

Objectives:

a) to complete an inventory and update the status of the Red-cockaded woodpecker in Georgia.

b) publish final status report.

Although peregrine falcons (Falco peregrinus) do not nest in Georgia, they do frequent our coastal areas during their spring and fall migrations. Coastal areas, with their abundant supply of shorebirds, provide excellent feeding areas for migrating falcons. Through banding studies we hope to learn more about their movements and migrational behavior.

Study Title	Contractor
Banding and Field Study of Migrating Peregrine Falcons on Cumberland Island	Joel Volpi

Objective:

a) to capture and band as many peregrines as possible during October, 1978.

Department of Natural Resources Studies

Although osprey (Pandion haliaetus) populations have declined severely over the past 10-15 years along the coast due to pesticide contamination, recent population trends are encouraging. Increases over the past several years may indicate a gradual cleaning up of our environment.

Study Title	Contractor
Statewide Osprey Nesting Survey	Department of Natural Resources

Objective:

a) to determine the number and locations of active osprey nests, reproductive success, and habitat preferences in Georgia.

Bald eagles (Haliaeetus leucocephalus leucocephalus) have not nested successfully in Georgia since 1970. Pesticides have been associated with reproductive failures in bald eagles, resulting in population declines. If the environment is becoming better suited for raptor populations (less contaminated) then reintroductions of bald eagles may restore populations to acceptable levels once again.

Study Title	Contractor
Hacking of Southern Bald Eagle Chicks	Department of Natural Resources

Objective:

a) to raise southern bald eagle chicks by hacking, using eggs from captive-reared adult eagles, to a self-sufficient flying state, using artificial nesting structures.

Although we have no scientifically confirmed evidence of cougars in Georgia for many years, indirect evidence would suggest that we have a small population. Road-killed specimens have been taken in recent years from bordering states of Alabama, Florida, and Tennessee. Each year our biologists investigate numerous "reported sightings." However the reports invariably turn out to be sightings of other animals. Our cougar data

collection project will compliment similar efforts being made by the Fish and Wildlife Service in the Southern Appalachians.

Study Title	Contractor
Georgia Cougar Investigations	Department of Natural Resources

Objectives:

a) to develop standardized reporting procedures and forms for recording cougar sighting data.

b) to investigate reported sightings and accumulate data at a central location for analysis.

Georgia has been conducting alligator (Alligator mississippiensis) surveys for about six years now. Night counts are conducted along major river systems throughout the state to detect population changes. We also periodically survey the amount of suitable alligator habitat statewide.

Study Title	Contractor
Georgia Alligator Survey	Department of Natural Resources

Objective:

a) to survey annually suitable alligator habitat in order to detect population trends.

Problem alligators usually turn out to be more of a "people problem" than an alligator problem. Neverless the complaints must be dealt with by our biologists and considerable time and money is expended on this problem. With an expanding human population,and an expanding alligator population combined with habitat losses, the problem can only worsen.

Study Title	Contractor
Nuisance Alligator Control	Department of Natural Resources

Objective:

a) to relocate nuisance alligators from problem areas.

The need and demand for endangered species educational materials has been overwhelming since the initiation of our program. The film that our staff is currently working on should at least partially satisfy that need. It is designed to be shown to a general audience and will deal with endangered wildlife species, their problems and recovery efforts.

Study Title	Contractor
Georgia's Endangered Wildlife Film	Department of Natural Resources

Objective:

a) to produce a 30 minute film on Georgia's endangered wildlife.

The Rare and Endangered Wildlife Symposium held in August, 1978 was organized to assemble up-to-date information on select southeastern endangered and threatened wildlife, to identify research and management needs, to foster better communication among researchers, to provide the public with feedback, and to stimulate similar symposium efforts.

Study Title	Contractor
Rare and Endangered Wildlife Symposium	Department of Natural Resources

Objectives:

a) to conduct a two day symposium on rare and endangered wildlife.

b) to publish proceedings of symposium (currently being edited - to be published soon).

The importance of effective law enforcement efforts cannot be overstated. With such a small staff, we must rely on law enforcement to make many of the personal contacts in the field.

Study Title	Contractor
Law Enforcement Training in Endangered Species	Department of Natural Resources

Objective:

a) to provide law enforcement personnel with eight hours of classroom training in endangered species identification, habitat requirements, and natural history.

The Department has been conducting heronry surveys on the Georgia Coast for the past four years. The data generated from these surveys are extremely useful to planners working with the development of coastal resources.

Study Title	Contractor
Heronry Surveys	Department of Natural Resources

Objective:

a) to identify the location and species composition of heronries along the Georgia coast.

Mercury contamination is a problem that we have been monitoring on the Georgia coast for over seven years. Two areas are of particular concern - the Brunswick and Savannah estuaries. Originally we monitored only the clapper rail (Rallus longirostris) resource, since they were hunted and therefore represented a potential human health hazard. For the past three years we have expanded our efforts to include the monitoring of other species of wildlife in the contaminated areas.

Study Title	Contractor
Mercury Contamination Surveys	Department of Natural Resources

Objectives:

a) to summarize all mercury contamination in coastal wildlife work accomplished since 1971 and publish.

b) to monitor mercury levels in coastal clapper rail populations annually.

c) to monitor mercury levels in wildlife of coastal Georgia every three years.

d) to prepare a final report.

In closing let me read to you a quote from one of America's most famous conservationists, Aldo Leopold, which I think summarizes in very simple and concise terms, what we through our program are striving for:

"The objective of a conservation program for non-game wildlife should be exactly parallel to a game mangement program; to retain for the average citizen the opportunity to see, admire, and enjoy, and the challenge to

understand the varied forms of birds and mammals indigenous to his state. It implies not only that these forms be kept in existence, but that the greatest possible variety of them exist in each community. In times past both these categories of opportunity existed automatically and hence were lightly valued. Both are now, by reason of their growing scarcity, perceived to be immensely valuable. Conservation is nothing more or less than a purposeful effort to perpetuate and extend them as one of our standards of living."

AIR ISSUES

J. Ronnie McHenry
EPA Region IV, Atlanta

The Clean Air Act of 1977 required the States to designate all areas within their boundaries that were not attaining the National Ambient Air Quality Standards (NAAQS) for total suspended particulates, nitrogen dioxide, sulfur dioxide, carbon monoxide and ozone. The States were to then submit a plan to EPA by January 1, 1979, showing how the NAAQS would be met. The NAAQS for total suspended particulates, nitrogen dioxide and sulfur oxides were to be attained by December 1982. For carbon monoxide and ozone a five-year extension could be granted by the Administrator provided all reasonable available control measures were adopted and an Inspection and Maintenance Program for automobiles was adopted and implemented. In Region IV 19 cities were designated non-attainment for either carbon monoxide (CO) or ozone (O_x).

The State Implementation Plans (SIP) are developed by using measured ambient air quality data, emission inventories and mathematical models. Ambient air quality data are measured with instrumentation. For example, total suspended particulate is measured by a "hi-vol" sampler, i.e., a vacuum device that pulls ambient air through a filter. The filter is then weighed and the golume of air that was drawn in can be used to determine what the ambient concentration was. The emission inventory is determined for an area by using emission factors. An emission factor is the mass of pollutant produced or generated per unit of time or activity. In other words, if one knows the tonnage of material processed or burned, the emission factor is used to determine the emissions for this source. This process is then followed for all sources both stationary and mobile to ascertain the emissions inventory.

By using the emission inventory and the measured ambient data, a mathematical model can be utilized to determine what percentage the emission inventory must be reduced by in order to attain the standards. For example, an urban area of 1,000,000 population would have an emission

inventory of approximately 100,000 tons/year of hydrocarbons. In general, the measured concentration of ozone would be around 0.16 ppm one hour average. Using a model this would require a 25% reduction in hydrocarbons in order to attain the ozone standard of .12 ppm. Ozone is formed when hydrocarbons and nitrogen dioxide in the presence of sunlight photo-dissociate to form ozone. In order to control ozone one of these pollutants must be controlled. Based upon smog chamber studies, EPA has found that hydrocarbons are the precursors that should be controlled.

Next, regulations for both mobile and stationary sources would be adopted in order to reduce hydrocarbons by 25,000 tons/year to attain the ozone standard. Some of the control measures for stationary sources the States will be adopting are: control of hydrocarbons from petroleum refineries; gasoline service stations; printing operations; automobile assembly plants, etc. The mobile source control measures are: inspection and maintenance programs for light duty vehicles; carpool programs; park and ride facilities; mass transit; exclusive bus and carpool lanes, etc. Once these measures are implemented the ambient air quality standards should be attained for each urban area. Thus EPA and the States will have done their job of protecting the public health and welfare of the citizens.

Finally, when you see comments in an environmental impact statement asking for a total pollutant burden analysis for hydrocarbons, the above discussion should help put into perspective why EPA requires this analysis.

AIR MODELS

Lew Nagler
Regional Meteorologist
EPA Region IV, Atlanta, Georgia

EPA modelling efforts are based on the Gaussian distribution of time averaged plumes (1-hour). Concentrations calculated by this method for each source are additive and are applicable to stable pollutants (SO_2, TSP, CO) and to gently rolling terrain. This method is not applicable to reactive pollutants (O_3, NO_2) or to areas of complex topography, especially where terrain features are higher than plum heights.

Available methods of calculating concentrations can be done by hand using workbooks such as the "Workbook of Dispersion Estimates" by Bruce Turner or by computer methods. A list of models used by EPA, although not inclusive, is listed under Model Applications Part I:

I. Models Used by EPA

A. Point Source Models

1. PTMAX
2. CRS-1/CRSTER/RAM
3. PTMTP-(W)

B. Area Source/Point Source Models

1. AQDM
2. Valley
3. CDM

C. Other Models

1. Hiway
2. Calair
3. APRAC
4. Rollback

One of our biggest concerns involves model accuracy via measured and predicted concentrations. There are several methods which one may use in evaluating a model. Three criteria that have been used are: the accuracy of the model in predicting the concentration produced at a specific location during a specific time period; the accuracy of the model in predicting the maximum concentration produced at a specific location throughout the year without concern for the model's accuracy

in determining the specific hours during which this maximum concentration occurs, and the accuracy of the model in predicting the maximum concentration produced throughout the year without concern for the model's accuracy in determining either the specific location or the specific hours during which this maximum concentration occurs. In the U. S. EPA's present applications of the CRSTER model, Criterion Three is the most important and relevant of these three criteria of model accuracy.

Another concern in modelling involves the accuracy of the input data. Temperature and velocity errors can account for calculation differences of about 2% for temperature changes to 25% for velocity changes. Temperatures and velocity also change with plant capacity; therefore, accuracy suffers unless the correct input data are used. An examination of graphs showing the exact velocity and temperature with load is a good way to show how these parameters can vary. Another factor that is important is that of stability class. Stability is simply how stable or unstable the atmosphere is and this governs the rate of how poorly or how well a pollutant is dispersed. The importance of model use and thereby model accuracy is important to EPA because models are used to set and enforce emission limits.

WORKSHOP I

Gerald Miller - Doris Kirby
EPA Region IV, Atlanta

This workshop was essentially a question and answer session which dealt with the mechanics of EPA's Environmental Impact Statement Review process. Included were the manner in which the different types of documents are reviewed; the details of EPA's examination of a facility's adherence to both new and existing provisions of public laws, Executive Orders, etc.; the criteria for assigning a rating to a given project, and lastly, some of the procedures mandated by the new CEQ regulations. This last matter fostered some of the greatest interest as representatives of various agencies had a number of concerns about how these new regulations would affect projects already in various stages of completion. The concept of a formalized scoping process was also discussed, especially as to its efficiency in early problem identification.

EPA's rating system is central to the rating process and was dealt with at length. This rating is based on its impact on the environment and the adequacy of the Statement, per se. The various rating categories follow:

ENVIRONMENTAL IMPACT OF THE ACTION

LO - Lack of Objection

EPA has no objection to the proposed action as described in the draft impact statement or suggests only minor changes in the proposed action.

ER - Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these impacts.

EU - Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

ADEQUACY OF THE IMPACT STATEMENT

Category 1 - Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2 - Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3 - Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonable available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

In order for our responses to meet the requisite time frame, a total of 10 copies of the Report should be forwarded, viz., 5 copies to EPA Washington and 5 copies to the Regional Office in which the project is located. This may appear to be a rather large number; however, it allows for a more timely response by circulating the document simultaneously through the various technical support branches.

During the last year EPA has focused on a number of difficult issues relative to impact statement review, e.g., wetlands protection--Highway 78, MS, Marco Island, FL; stream alteration--Joyce Creek, NC, and air quality--Sunshine Parkway, FL.

At the beginning of the second workshop session Mr. Robert Cooke, Jr., discussed the new changes in the Section 7 consultation process. An explanation of the two "Step Down Process" follows:

Explanation of Step Down Process

The 1978 Amendments to the Endangered Species Act have changed the consultation process under Section 7. First a Federal agency must determine if their actions are authorizing, funding, or carrying out a construction or non-construction project.

For purposes of providing interim guidance, the Fish and Wildlife Service considers construction projects to be any action conducted or contracted by the Federal agency designed primarily to result in the building or erection of such man-made structures as dams, buildings, roads, pipelines, and the like.

This includes consideration of major Federal actions such as permits, grants, licenses, or other forms of Federal authorization or approval which may result in construction and which significantly affect the quality of the human environment.

The following two "Step Down Processes" are for general guidance and are not to be considered final, inasmuch as the Fish and Wildlife Service and National Marine Fisheries Service are preparing new Interagency Cooperation Regulations for the implementation of the new amendments to Section 7.

Endangered Species Act of 1978
Section 7

STEP DOWN PROCESS
CONSTRUCTION PROJECT

1. Federal Agency requests from Regional Director whether any species which is listed or proposed to be listed may be present.

2. Regional Director advises which species may be present. Minimum information needed in a Biological Assessment:

   A. Identification of proposed and listed species or Critical Habitat determined to be present in area of activity.

   B. Description of proposed activities.

   C. Assessment of potential impacts of the activity on the proposed and listed species or Critical Habitat.

   D. Where an impact is identified to proposed and listed species or Critical Habitat, a discussion of efforts that will be taken to eliminate any adverse effects.

3. Federal Agency has 180 days after the date of receipt of Regional Director's letter or mutually negotiated date to complete Biological Assessment.

4. Federal Agency then reviews assessment and determines if any listed species is affected.

5. Sends a copy of the assessment and their determination to the Regional Director.

6. If Federal Agency determines:

   A. "No effect" - Consultation is <u>not</u> necessary, unless requested by the Regional Director.

   B. "May affect" - Consultation is requested in writing from the Regional Director.

7. Regional Director acknowledges request and must issue a Biological Opinion within 90 days of "date of receipt" or by a mutually negotiated date.

8. Request is assigned to the appropriate Area Office to accomplish the consultation.

9. Area Office must review the information provided as soon as possible to determine if additional information will be needed and identify the type of information needed.

10. If additional information is needed, a letter will be sent to the agency requesting the information and requesting an extension of time to complete the consultation.

11. After receipt of information a Biological Opinion will be issued stating:

    A. Action will promote the conservation of the listed species.

    B. Action is not likely to jeopardize the continued existence of listed species or destroy or adversely modify Critical Habitat.

        (1) Recommendation which would enhance.

    C. Action is likely to jeopardize the continued existence of listed species and/or destroy or adversely modify Critical Habitat.

        (1) Presentation of reasonable and prudent alternatives which will avoid jeopardy to the listed species or destruction or adverse modification of Critical Habitat and which can be taken by the Federal agency, or the permit or license applicant.

    D. Action may jeopardize the continued existence of listed species or destroy or adversely modify Critical Habitat.

        (1) Used only when additional information was unobtainable and,

        (2) No extension of time was mutually agreed to.

12. Reinitiation of Consultation

    A. New information reveals impacts of action that may affect listed species or their habitats.

    B. The Federal action is subsequently modified.

    C. A new species is listed that may be affected by the action.

Endangered Species Act of 1978
Section 7

STEP DOWN PROCESS
NON-CONSTRUCTION PROJECTS

1. Federal agency reviews the project and determines:

   A. "No effect" - Consultation is not necessary, unless requested by the Regional Director.

   B. "May affect" - Consultation is requested in writing from the Regional Director and the agency:

      (1) Provide biological information which includes:

         a. Identification of proposed and listed species or Critical Habitat determined to be present in area of activity.

         b. Description of proposed activities.

         c. Assessment of potential impacts of the activity on the proposed and listed species or Critical Habitat.

         d. Where an impact is identified to proposed and listed species or Critical Habitat, a discussion of efforts that will be taken to eliminate any adverse effects.

      (2) Other relevant information.

2. Regional Director acknowledges request and must issue a Biological Opinion within 90 days of "Date of Receipt," or by a mutually negotiated date.

3. Request is assigned to the appropriate Area Office.

4. Area Office must review the information provided as soon as possible to determine if additional information will be needed and identify the type of information needed.

5. If additional information is needed, a letter will be sent to the agency requesting the information and requesting an extension of time to complete the consultation.

6. After receipt of information, a Biological Opinion will be issued stating:

   A. Action will promote the conservation of the listed species.

   B. Action is not likely to jeopardize the continued existence of listed species or destroy or adversely modify Critical Habitat.

(1) Recommendation which would enhance.

C. Action is likely to jeopardize the continued existence of listed species and/or destroy or adversely modify critical habitat.

(1) Presentation of reasonable and prudent alternatives which will avoid jeopardy to the listed species or destruction or adverse modification of Critical Habitat and which can be taken by the Federal agency, or the permit or license applicant.

D. Action may jeopardize the continued existence of listed species or destroy or adversely modify critical habitat.

(1) Used only when additional information was unobtainable and,

(2) No extension of time was mutually agreed to.

7. Reinitiation of Consultation

A. New information reveals impacts of action that may affect listed species or their habitats.

B. The Federal action is subsequently modified.

C. A new species is listed that may be affected by the action.

WORKSHOP II

Information: The Backbone of The Environmental Impact Statement

Carolyn W. Mitchell
EPA Region IV, Atlanta, Georgia

The Information Workshop presented both information and communication resource techniques available for the EIS process. Speakers were from different areas including Georgia Tech's Information Exchange Center, a NASA/State funded research center in North Carolina, a private publisher, and two environmental consultants. An especially interesting presentation was made by Larry Wills of Claude Terry Associates. Mr. Wills has experimented with using video tape in lieu of the printed EIS document, a format which is especially useful for public participation.

Another interesting presentation was delivered by Saul Herner, a Washington, D. C., publisher which specializes in EIS related books and digests. Mr. Herner's company has recently published Environmental Impact Statement Process: A Guide to Citizen Action, by Neil Orloff. Orloff, formerly with EPA and CEQ, has directed his efforts to citizen action in the EIS process.

Information about this workshop and some remaining packets which were distributed are available from Carolyn Mitchell in the Library.

INFORMATION WORKSHOP: THE SPEAKERS

Carolyn W. Mitchell, Head Librarian
U. S. Environmental Protection Agency, Region IV
345 Courtland Street
Atlanta, Georgia 30308

404-881-4216
FTS 257-4216

As a professional librarian with four years of EPA experience, Mrs. Mitchell has witnessed a large growth in the area of environmental information, including both published and computerized systems, and the difficulties and possibilities of retrieving and using that information effectively.

* * * * * *

Jim Dodd
Georgia Institute of Technology
Information Exchange Center
Atlanta, Georgia 30332

404-894-4526

J. Graves Vann, Jr.
North Carolina Science and Technology Research Center
P. O. Box 12235
Research Triangle Park, North Carolina 27709

800-334-8561
(Ext. 100)
919-549-0671
(N. C.)

Both Mr. Dodd and Mr. Vann represent highly sophisticated information services which are available for use in the EIS process. Using expert subject or research specialists and on-line data bases, these services can provide quick information on a wide number of subject areas, including statistical and environmental, for a relatively small fee.

* * * * * *

Saul Herner
Information Resources Press
2100 M Street
Washington, D. C. 20037

202-292-2605

Information Resources Press, founded by Mr. Herner, has published several books on the EIS process, including Neil Orloff's "Environmental Impact Statement Process: A Guide to Citizen Action." "EIS: Key to Environmental Impact Statements," a monthly digest, revises

major issues of all current EIS's. This digest is well indexed by subject, agency, and geographical location. Information Resources Press also provides microfiche and paper copies of all impact statements.

* * * * * * * *

Kenneth Prest
Environmental Licensing Group, Inc.
P. O. Box 7151
Pensacola, Florida 32581

904-433-0968

As President of the Environmental Licensing Group, Mr. Prest has developed a systematic process for managing environmental regulatory compliance problems of business and government. By maintaining current knowledge of State and Federal regulations and by applying this knowledge within the context of natural and social systems and incorporating management decision making skills in working with business and government, Mr. Prest has contributed to streamlining the licensing process at State and Federal levels. The result of this effort is enhanced cooperation between government and business in resolving environmental problems.

* * * * * * * *

Larry Wills
Claude Terry & Associates
2220 Parklake Drive, N. E.
Atlanta, Georgia 30345

404-320-0430

With a background in Visual Design and eight years of experience as an environmental consultant in the EIS field, Mr. Wills works to improve the quality and readability of impact statements. As a result of his communications background, Mr. Wills has been particularly involved in NEPA's required public participation aspect. His most recent effort involved the design of a comprehensive citizen participation plan for the Louisville, Kentucky, 201 EIS. The three-year CP program for this highly controversial project will extensively use television to educate the public, record citizen responses, and identify and respond to citizen concerns and issues.

CHECKLIST FOR INFORMATION MANAGEMENT IN THE NEPA PROCESS

Prepared by:

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CHECKLIST FOR INFORMATION MANAGEMENT IN THE NEPA PROCESS*

INTRODUCTION

On November 29, 1978, The Council on Environmental Quality promulgated regulations for the implementation of the National Environmental Policy Act of 1969 (NEPA). The purpose of these regulations is:

> ...to provide all Federal agencies with an efficient, uniform procedure for translating the law into practical action...[and]...to accomplish three principal aims: to reduce paperwork, to reduce delays, and at the same time to produce better decisions.

It is difficult to speculate, at this time, whether the regulations will achieve the purpose and aims. While the regulations do set out a "uniform procedure for translating the law into action," the measure of the efficiency of the process and the ability to reduce paperwork, delays and make better decisions is a function of:

(1) the individual agency's interpretation of the regulations;

(2) the agency's ability to perceive a real difference between "writing disclosure documents" and "making real world decisions;" and

(3) the capability of the agency to understand the issues under its review and its ability, (skill), for gathering and applying information judiciously.

The Council recognizes these limitations by providing two contingencies: the first in §1505.1, requires: "Agencies shall adopt procedures...to ensure that decisions are made in accordance with the policies and purposes of the Act;" the second, in §1506.7, states

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*The CHECKLIST FOR INFORMATION MANAGEMENT IN THE NEPA PROCESS (C) was originally prepared for and presented at the Environmental Impact Statement Conference, U.S. Environmental Protection Agency, Region IV, Atlanta, Georgia, 7-8 December, 1977, independent of the preparation of the Council on Environmental Quality Regulations. It has been successfully applied in the preparation of an Environmental Assessment Statement for a major coal-fired steam electric generating Station.

"The Council may provide further guidance concerning NEPA and its procedures including...a handbook...which shall in plain language provide guidance and instruction concerning the application of NEPA and these regulations." The individual agency procedures and the Council's "handbook" will figure prominently in the effective implementation of the regulations.

In sum, the CEQ regulations have taken an important step in environmental problem solving. However, inherently they create an illusion that if not clearly understood and avoided, will defeat their very purpose, that is: good documents and good regulations result in good decisions. This is not true. Neither documents nor regulations make decision; people do!

The decision making process is a mental process, a way of thinking and looking at problems and opportunities. What comes out on paper as an environmental assessment or an environmental impact statement, is, in reality, nothing more than the documentation of a decision making process. The process itself, goes on prior to the documentation and is contingent on an open, informed flow of information. Furthermore, people, whether in the private or public sectors, can not make responsible decisions unless (1) they know how to manage information and people; (2) they have the ability and skills to make the process work; and (3) they are willing to accept the consequences, i.e., risks, for decisions not made and alternatives not chosen. Unless the individual "decision makers" are adequately trained in decision making, have the technical knowledge upon which to base the decisions, and the commitment to make the process work, the process will not function effectively.

The CHECKLIST FOR INFORMATION MANAGEMENT IN THE NEPA PROCESS has been prepared as a guide to aid effective implementation of decision making as directed by the National Environmental Policy Act. Its value rests not so much with the specific questions asked, or responses obtained, but as a road map for a systematic process employed to identify problems, develop meaningful information, evaluate alternatives, decide a responsible course of action and implement, knowingly, the decision. As required, the user should adopt the process to his specific needs.

Information management is a skill which must be practiced. Knowledge about organizations, systems, management and human behavior is as important as specific technical understanding. Subsequently, it will behoove the individual involved in the NEPA process to:

(1) Generally broaden his skills and knowledge;

(2) Begin early to identify information sources and to build information networks; and

(3) Recognize and accept that all decisions must be made within constraints. Learn how to use these constraints advantageously.

With this approach, working within the NEPA framework should become more objective, more effective, more productive and more satisfying to all involved.

CHECKLIST FOR INFORMATION MANAGEMENT IN THE NEPA PROCESS

STEP I: DEFINING THE ACTION, PROBLEM OR ISSUE TO BE ADDRESSED

1. What, specifically, is the problem or issue to be addressed or the action taken? (This should be written down for greatest clarification.)

2. What, specifically, is my agency's (section's, department's) role in the NEPA process?

3. What specific action must I take on the problem?

4. What statutory, administrative, policy or attitudinal limitations have been placed on defining the problem and on my role in carrying out my responsibilities?

5. How have similar issues been handled in the past?

6. Should the current problem be approached traditionally or is a new perspective required?

7. Within what time frame must I act?

8. How will my actions interrelate with those of other sections, branches, departments or agencies involved in the same process?

9. What can I anticipate to be the end result of the process? (This can be particularly important since there can be several means to any end.)

10. What is the extent (significance and magnitude) of public interest and/or national interest in the problem or issue? (Identifying public interest at this stage is most important in broadening one's perspective of issues.)

11. What consequences, long term as well as short term, can reasonably be expected to result from action I may take in the NEPA process? (Consequences should be considered as they may occur both in the private sector and public domain.)

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STEP II: ACQUIRING INFORMATION TO IDENTIFY AND EVALUATE THE PROBLEM

1. What specific information do I need to carry out my responsibilities? (This should include information to satisfy specific requirements as well as information on the process used to achieve objectives.)

2. How will the information I produce be used in the overall NEPA process?

3. If a technological process is involved, do I clearly understand how this process works and interacts with the natural air, water and land resources and biological and human systems supporting it?

4. In developing technical information, how much detail is needed? What is the minimum level of information I need to carry out my responsibilities and produce a defensible recommendation?

5. To what extent can I rely on secondary information in lieu of primary information? Can my actions be justified on a qualitative basis or must I develop quantitative input also?

6. Can I set priorities on the kind and amount of information that could be used in my review?

7. Where is the information I need located? Is it available? (People as well as documents should be the basis for consideration.)

8. Is the information in a readily useable form or will it require extensive manipulation and interpretation?

9. Can I obtain the information? If so, how?

10. How long will it take to obtain the information? Can I justify extensive researching or other delay in receipt or specific information?

11. What alternatives are there if I can not obtain the desired information?

STEP III: EVALUATING INFORMATION TO DETERMINE ITS USEFULNESS

1. Is the information obtained relevant to the problem? (Relevancy can be reviewed in terms of generally accepted basic principles and as pertinent site- or action-specific requirements.)

2. How will the information help resolve the problem or complete my responsibilities?

3. Is the information obtained valid? If the validity is questionable, how can this be resolved? Where or to whom can I go for clarification?

4. Regarding site- or action-specific information, can the information be applied directly or must its use first be conditioned by assumptions?

5. Are the assumptions used in the evaluation reasonable and rational? Can they be, (or have they been), factually and logically stated? Are they documented as generally accepted or must they be considered unique to the particular situation under review?

6. Under what conditions would the assumptions be invalid? Might these conditions occur in the situation at hand?

7. What are the effects or consequences of using certain assumptions as opposed to others? Can the choice among assumptions be justified; theoretically, empirically, administratively (due to policy or law)?

8. Once collected, can the information be reused in other situations? Is it worth storing for future use?

STEP IV: IDENTIFYING AND EVALUATING ALTERNATIVE APPLICATIONS

1. Considering how the problem was defined and what information is available to be applied to the problem, what options are reasonable and rational for solving the problem or carrying out responsibilities?

2. How can the information be most effectively applied?

3. Will selecting one option or alternative over another limit future flexibility or actions?

4. Will prevailing influences (i.e., social, legal, attitudinal, political, limits-of-knowledge) have an effect on the implementation of the alternative chosen? Will these influences be the same at the time the final decision is made as they are now?

5. Is the alternative and the procedure used to select the alternative consistent with the overall implementation of the NEPA process?

STEP V: DECIDING THE SPECIFIC COURSE OF ACTION

1. Have I clearly satisfied my specific statutory and/or job related responsibilities?

2. Is my action defensible? Would I make the same decision a year from now given the same limits-of-knowledge, resources, and circumstances?

3. Have I documented the sequence of events and factual considerations leading up to my decision and recommendation?

4. Will my action enhance rather than complicate the NEPA process?

STEP VI: IMPLEMENTING THE CHOSEN COURSE OF ACTION

1. Have I prepared and communciated my position clearly and effectively? Have I used a form (tables, figures, text) which best communicates my intent?

2. Have I constructed my position logically and completely so that the reader will not have to assume my intent, or misconstrue my meaning?

3. Have I presented reasonable, rational alternatives and recommended the "best" course of action given the circumstances and limitations of time, manpower and information?

4. Can I confidently defend my action under scrutiny?

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EPA

EIS-RELATED INFORMATION

CHEMICAL REGULATIONS REPORTER (BNA):
Weekly review of activities affecting chemical manufacturers and users, including coverage of Federal and state laws and regulations.

ENCYCLOPEDIA OF ASSOCIATIONS (Gale Research Co.):
Detailed information including location, size, staff, objectives, and telephone numbers of commercial, scientific, engineering, agricultural, governmental, legal, military, and other organizations. Includes alphabetical and key word indices.

ENERGY USERS REPORT (BNA):
Weekly report covering energy policy, technology, and supply. Includes coverage of energy laws and regulations, energy statistics, and a directory of energy-related departments and organizations.

ENVIRONMENT REPORTER (BNA):
Weekly review of pollution control and related environmental management problems, including coverage of Federal and state environmental legislation, laws, and regulations.

EPA REPORTS BIBLIOGRAPHY (NTIS):
Abstracts and indices of EPA reports. Provides ordering information for purchasing reports through NTIS.

FINDING FACTS FAST by Alden Todd (William Morrow Co., 1972):
Text explains research methodology, library use, ideas for outside-the-library investigation to help researchers find out what they want to know immediately.

GOVERNMENT REPORTS ANNOUNCEMENTS AND INDEX (NTIS):
Biweekly summary and index of government research. Indexes cummulate annually.

KEY TO EIS (Information Resources Press):
Monthly index and abstracts to EIS, including access by subject, agencies involved, geographic areas affected, laws and court decisions relating to EIS. The impact statements are also available on microfiche.

OBERS PROJECTIONS (U.S. Water Resources Council):
Five volume set including historical and projected data for economic activity in the U.S. Organized by states, water resources regions, and Bureau of Economic Analysis Economic Areas. Includes one volume summary and explanation of methodology.

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PROFESSIONAL PUBLICATIONS:

Several journals of professional organizations contain information relevant to EIS research, such as 102 Monitor (CEQ), JOURNAL OF AIR POLLUTION CONTROL ASSOCIATION, JOURNAL OF WATER POLLUTION CONTROL FEDERATION.

PROJECTIONS OF ECONOMIC ACTIVITY IN (STATE), SERIES E, POPULATION (Corps of Engineers):

Documents providing historical and projected demographic and economic data for each of the nine states in the Southeast. One volume summary of projections for the Southeastern states is also available.

STATE ENVIRONMENTAL LAWS AND REGULATIONS (Environmental Information Center):

Collection of laws, rules and regulations of environmental importance for all 50 states. (Available at EPA Region IV Library in microfiche.)

COMPUTERIZED LITERATURE SEARCHES

NTISearch (NTIS):

Individual computer searches of entire NTIS Bibliographical Data file covering Federally sponsored research projects since 1964. Fees for searches begin at $100.

AIR POLLUTION TECHNOLOGICAL INFORMATION CENTER (APTIC) SEARCHES (EPA):

Literature searches of air pollution control articles through the EPA Library at Research Triangle Park, North Carolina. Free to EPA personnel, current contractors and grantees of EPA when endorsed by their EPA project officer, state and local governmental agencies, non-profit environmental and citizens groups.

ABSTRACTS

ENERGY INDEX (EIC)

Annual guide to literature in energy. Includes sections covering year's events, key legislation, conferences, books, films, and statistics relating to energy.

ENVIRONMENT INDEX (EIC):

Annual index covering 21 subject categories of environmental concern. Indexes journals, newspapers, government documents, and conferences. Includes listing of pollution control officials and a chronology of the year's events of environmental importance.

SELECTED WATER RESOURCES ABSTRACTS (Water Resources Office, Interior Dept.):

Semi-monthly publication abstracting current and earlier monographs, journals, reports and other publications dealing with water-related aspects of the sciences, engineering and the law. Also includes coverage of conservation, control, use and management of water.

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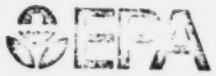

WHERE TO FIND EIS-RELATED MATERIALS

DEPOSITORY LIBRARIES FOR GOVERNMENT DOCUMENTS:

Public and university libraries (217 in the Southeast) compose a nation-wide system that serves as storehouses for all Federal government publications, as well as many state and local documents.

GPO BOOKSTORES:

Located throughout the U.S., the bookstores provide a wide selection of GPO materials for purchase, as well as ordering information for all Federal publications.

INFORMATION CENTERS AT MAJOR RESEARCH LIBRARIES:

The centers provide thorough searches of the literature on a given topic, usually for a fee. One such center is the Georgia Tech Information Exchange Center.

LIBRARIES OF AGENCIES OR ORGANIZATIONS INVOLVED WITH THE PROJECT:

Although quality of the collections may vary, many agencies or organizations involved with a project may provide additional information. Most Federal agencies do have a library system, as with EPA, TVA, Corps of Engineers, U. S. Geological Survey.

UNIVERSITY OR COLLEGE LIBRARIES:

The reference librarians at large academic libraries, especially those located near the area affected by the EIS, are available to explain their library's collection. Especially good for socio-economic information.

U. S. ENVIRONMENTAL PROTECTION AGENCY REGIONAL OFFICE LIBRARIES:

The regional libraries hold depository collections of EPA reports, a substantial collection of state and local documents relating to environmental problems, especially within their regions, as well as an assemblage of supportive books and journals.

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South Carolina, Tennessee,
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REGION IV LIBRARY

Librarian: Carolyn Mitchell, MLS
Assistant Librarian: (vacant)

The Region IV Library was established in May 1973. Some of the material incorporated into the collection came from the pre-EPA offices of the Public Health Service and the Federal Water Pollution Control Administration.

The collection presently consists of 1500 books, 10,000 cataloged documents, 300 journal and newsletter subscriptions, and 175,000 reports on microfiche.

The subject areas of the collection are water quality, water supply, wastewater treatment, air pollution, solid waste management, noise pollution, toxic substances and hazardous materials, land use, environmental law, and Southeastern U. S. ecology.

Special collections include EPA reports, Air Pollution Technical Information Center (APTIC) reports, Southeastern environmental materials, state environmental laws and regulations on microfiche, and Federal Women's Program materials.

The Library provides the Region IV staff with reference, circulation, interlibrary loan and current awareness services. Assistance is also provided to the general public.

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WETLAND WORKSHOP III

E. T. HEINEN
EPA REGION IV, ATLANTA

E. T. Heinen, Chief, Ecological Review Branch, Enforcement Division, EPA/ Atlanta, convened and chaired two consecutive sessions of a workshop to discuss wetland issues and specific problem areas of EIS preparation and review. The format was an open-discussion, question and answer session in which questions were fielded and discussed by anyone who wished to have an input.

1). Mr. Heinen introduced his staff which included two new members, and gave areas for which they were responsible:

Mary Veale, Southern Florida and Kentucky;
Howard Marshall, South Carolina and Mississippi;
Bradley Nicolajsen, Tennessee and North Carolina*;
Bill Kruczynski, Northern Florida and Phosphate Mining;
Eric Hughes, Alabama, Gerogia and Florida Panhandle.

Telephone numbers (404-881-2643, FTS: 257-2643) and address (345 Courtland Street, Atlanta, Georgia 30308) of the Ecological Review Branch were given. It was explained that the above group would review and provide comments on sections of EIS's dealing with water quality and wetlands to EPA's EIS Branch who, in turn, would prepare Regional comments in a single reference letter to the originating Federal agency.

2). Mr. Heinen indicated that new 404(b) guidelines are currently in preparation and that more information concerning these may be available next week, after the scheduled meeting of 404 Branch Chiefs in Dallas.

3). The bridging of wetlands for highways was discussed. It was asked if EPA takes economics into consideration in making recommendations or highway projects. Bridging wetlands can be very costly, and at times, may double the budget of a project. It was explained that EPA makes recommendations based on destruction of wetlands. One of the factors considered is economics, but it is left up to the Corps of Engineers to weigh all factors and decide what is in the best interest of the public.

4). The above discussion led to an expression of need for studies which determine the actual, economic value of wetlands. The difficulties with such studies were discussed and it was stated that approximately 10 studies give a dollar per acre value for tidal wetlands on the east coast, and that these values vary by an order of magnitude. It was also stated that developers often overlook the fact that the economic importance of wetlands is given a time category, and that once they are destroyed, the areas are usually lost forever.

*Not Present

5). The value of EPA's involvement at a very early stage in considering possible corridors for new highway projects was discussed. EPA would like to have an input and participate in pre-EIS discussions and field trips to walk through proposed corridors for road siting. This is important so an input could be made before monies are spent which makes it economically difficult to consider alternatives.

6). The status of the Department of Interior's National Wetlands Inventory Program was discussed. The U.S. Fish and Wildlife Service is heading this revision of the inventory and it is based on aerial mapping with large scale photographs. Its availability was discussed and it was pointed out that its use must be restricted and limited. The survey should not be depended on for jurisdiction determinations. It is the function of the Corps of Engineers to make jurisdictional determinations. The adequacy of the regional offices of the Corps in Florida was applauded; they can usually visit sites and make jurisdictional determinations within the same week as requested.

7). It was asked what EPA looks for in an EIS. The Ecological Review Branch, represented at this workshop, looks for discussions of issues dealing with wetlands which might conflict with Section 404(b) guidelines and Executive Orders 11990 and 11988. These regulations will be made available to anyone on request.

8). The question of mitigation for loss of wetlands was raised. EPA's general policy is that wetlands per se are not mitigated; this is tantamount to the selling of permits. It also is very unfair to owners of small acreages where mitigation is not possible; large tract landowners can more easily mitigate. It was mentioned that the Corps of Engineers never has made mitigation a condition of a 404 permit. The Corps has suggested that the applicant work out any mitigative measures with the appropriate federal agency.

9). The implications and history of the Jentgen trial were discussed. Mr. Jentgen wished to develop a mangrove area in southern Florida and was denied a Section 404 permit. He chose to pursue the matter in the Court of Claims and rejected any compromise. The potential impact of the ruling on this case are great and will affect enforcement activities of all agencies, and perhaps even zoning.

WORKSHOP IV

THE ECOLOGICAL SIGNIFICANCE OF SNAGS IN RIVERS

Arthur C. Benke
School of Biology
Georgia Institute of Technology

For many years, man has attempted to manage streams and rivers for various purposes, including flood control, navigation, agricultural development of the floodplain, and hydropower. Some types of management have involved varying degrees of channel modification, including the removal of wood obstructions from the channel (snagging), the removal of terrestrial vegetation from much of the floodplain (clearing), and the widening, deepening and straightening of the stream channel (channelization). These actions have often coincided with plans for drainage of adjacent wetlands for agricultural development, although the latter has sometimes remained undone. In the last few years attempts have been made to document the ecological consequences of such stream alterations, often emphasizing the significance of the river swamps (e.g., Wharton 1970). Current research on the Satilla River by a Georgia Tech study team was oriented toward assessing the importance of the submerged wooden substrates that are removed in snagging operations. These substrates, hereafter referred to as snags, include fallen trees, as well as the roots, branches, and trunks of living trees that are periodically inundated. The results of this study are summarized herein.

The Satilla River is a blackwater river which lies entirely in the Georgia Coastal Plain and empties into the Atlantic Ocean near Cumberland Island. The purpose of the study was to assess the distribution of invertebrate production in the river, and how this production related to overall ecological processes, especially the utilization of invertebrate species as a food source for fishes.

Three habitats were sampled for invertebrates at 2-4 week intervals for a year: the sandy benthic habitat in the main channel, the

muddy benthic habitat of the backwaters or sloughs, and the snags along the river banks. By far the highest diversity of species and biomass of invertebrates was found on the snags. Animal biomass was 5 to 50 times higher on snag surfaces than in benthic habitats. Snag species included many filter-feeding insects such as the larvae of net-spinning caddisflies, midges, and blackflies. Wood consuming beetles were also predominant, as well as invertebrate predators such as dragonfly, stonefly and dobsonfly larvae. The benthic habitats consisted primarily of midge larvae and worm species, with the biomass considerably higher in the muddy backwaters than in the sand habitat.

Concurrent with the habitat samples, invertebrates were also captured with drift nets. Animals normally associated with the substrates discussed above often are dislodged into the current and their relative abundance can be independently assessed by drift analyses. Approximately 80% of both the numbers and biomass of invertebrates collected in the drift were species normally found on the snags. The rest were from benthic habitats.

Extensive fish collections were made at two month intervals during the same year as the habitat and drift sampling. The major sunfish species, including bluegill and redbreast, were much more dependent on snags than either benthic habitat for invertebrate food. Largemouth bass and pickerel utilized snag invertebrates early in life, but switched to crayfish or fish prey as they grew.

The consistent picture of invertebrate dynamics in the Satilla River strongly confirms earlier studies suggesting that snags are extremely important to the natural functioning of many river ecosystems, especially as a source of food for fish. However, the ecological effect of snagging and clearing in rivers is not limited to a decline in invertebrate production and fish food. For example, removal of stream bank canopy (clearing) removes a major food source for aquatic invertebrates; the invertebrates in turn function in processing of organic matter in streams; the snags provide not only food, but cover

and shelter for fish and other animals; snags seem to aid fish in their orientation and may be important as spawning sites for some species (Marzolf 1978).

References

1. Marzolf, G.R. 1978. The potential effects of clearing and snagging in stream ecosystems. Fish and Wildlife Service, U.S. Department of the Interior.
2. Wharton, C.H. 1970. The southern river swamp - a multiple use environment. Georgia State University.

Environmental Impacts of Cultural Practices on Natural Ecosystems

Dr. Tom Simpson
Dames and Moore, Atlanta, Georgia

Societal growth and development may impart a variety of effects on natural ecosystems. The present discussion relates to one aspect of these impacts -- those associated with alteration of streams. Much of the information contained in this discussion was obtained from the paper by Marzolf (1978).

Stream modification may be carried out for a variety of reasons such as: draining floodplains for agriculture; protecting citizens from floods, and maintaining navigable waterways.

The most common type of stream alterations are one or more of the following: straightening; widening and/or deepening; lining; clearing and snagging and/or dredging, and redirecting and/or recreating.

Most of these processes are designed to improve stream flow rate and volume. Thus, widening and deepening simply increase the stream cross-sectional dimensions and clearing, snagging, and dredging remove obstructions from the stream banks and stream beds. On the other hand, various types of linings are implaced to slow stream erosion and may reduce stream flow.

As of 1971, there were over 7,000 miles of completed stream alteration and approximately 20,000 additional miles of rivers and creeks planned for some type of modification (Wilkinson, 1975). The range of streams that have undergone alteration varies from very small, unnamed streams on private property to the nearly 4,000 miles of the Mississippi River, the average stream alteration project involving about a 5-mile length of stream. Over 80% of stream alterations occur in 10 southern States (Wilkinson, 1975).

The impacts of stream alteration are both physical and biological. The major physical changes (increased rate and volume of stream flow, increased suspended solids, reduced amount of organic input, and increased temperature) are each related to biological modifications. In addition, the degree of biological response is dependent in part on geomorphic principles such as the nature of the bedrock, the ease of erosion, and the substrate chemistry. The classification system of streams by "order" incorporates primarily physical features. By this system geologically young channels are defined as first order streams; two first order streams combine to produce a second order stream, and so forth, with the main

trunk stream that leaves the watershed having the highest ordinal classification. Embodied in this classification scheme, therefore, are certain physical characteristics associated with low order through high order streams that are reflected in general biological responses. These general biological characteristics illustrated in Figure 1 follow a pattern of change in major components and dominance of the biota as the channel progresses from lower to higher order streams. As illustrated in this Figure, the lower order streams or headwaters often have a tree canopy layer that shades the stream and provides organic material in the form of fallen leaves and twigs. Organisms described as shredders are abundant in this section, adapted for reducing the large organic particles (course particulate organic matter, CPOM) to smaller detritus particles (fine particulate organic matter, FPOM). The passing of the FPOM downstream, as well as the organisms of the lower stream order, provide the energy inputs for collectors and predators in the higher stream orders. Additionally, with reduced canopy layers, primary productivity in the form of algae and higher plants becomes prevalent and herbivores that feed on these producer species become common. The general pattern along the stream channels, therefore, is a change in roles played by different organisms in the food web with each species having a different importance value based on its functional role in each trophic level. Thus, insect larvae of a single species may play different roles at different stages of their life cycle.

The effects of channelling, snagging and clearing, or otherwise modifying streams and their shore lines are summarized in Table 1. The effects on the biota in one stream order may impact other changes in the biota in higher stream orders, downstream, much like falling dominoes. In many cases there may simply be a shifting of the community downstream to an area not affected by the stream modification. Through competition with established species, however, the effect will generally be reduced diversity and productivity. Conversely, removal of the canopy layer in lower order streams may shift some communities closer to the headwaters, with increased light providing higher primary productivity in upper reachings of the stream. Regardless of the type of modification conducted, productive streams would likely change in species composition, distribution and diversity.

Although little work has been done on ameliorating the effects of stream alteration, recovery on reestablishment of original communities might be hastened by a variety of measures, from reestablishing typical vegetation important in adding organic litter to the stream, to the addition of substrates, such as rocks and twigs, as replacement habitats for benthic organisms and fish. Additional studies are currently needed to develop measures for mitigation of these impacts. Research would be particularly important in the temporal changes in physico-chemical processes that occur after specific kinds of alterations and in their associated biological sucessions.

BIBLIOGRAPHY

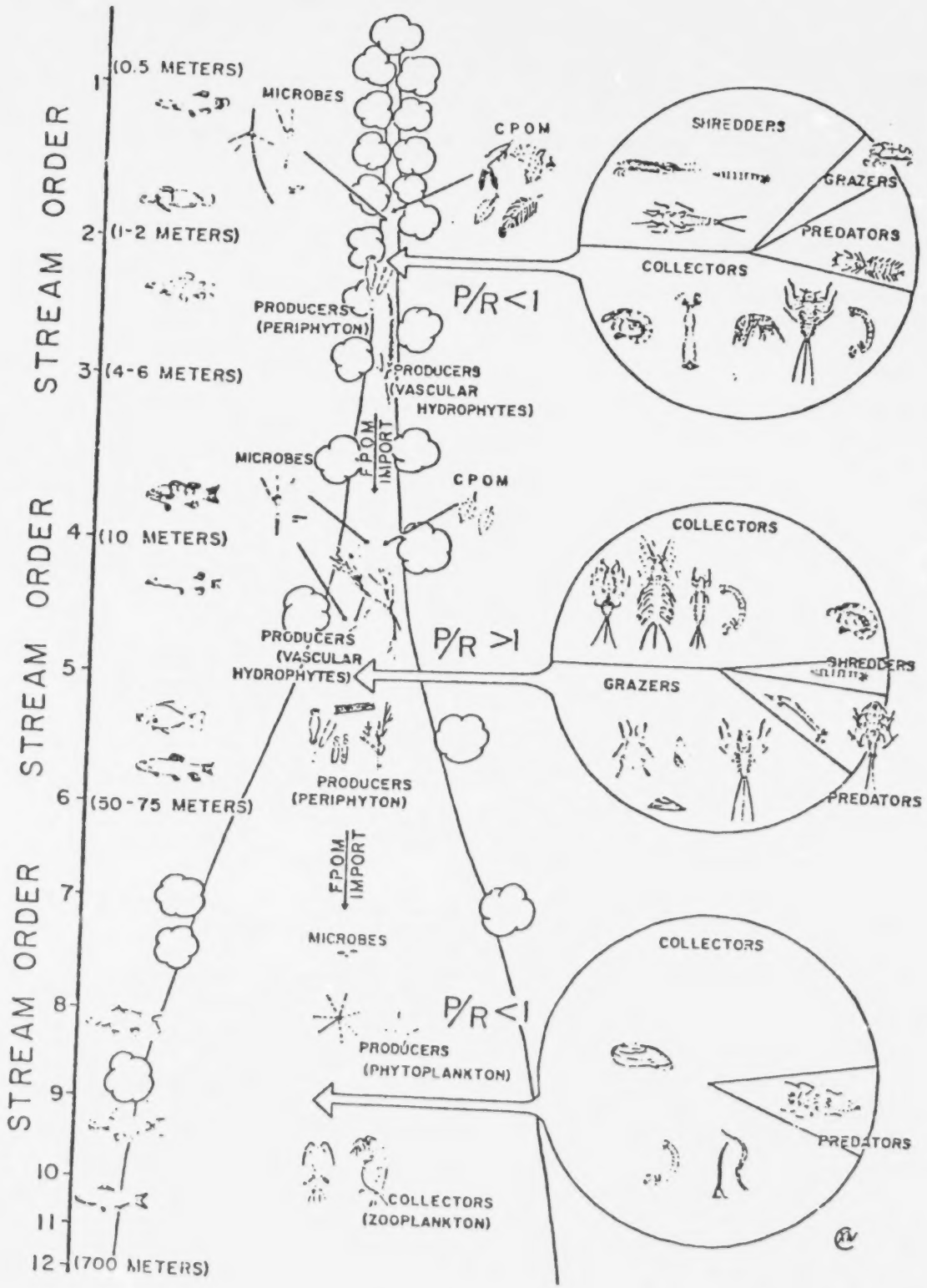
Marzolf, G. Richard, 1978. The Potential Effects of Clearing and Snagging on Stream Ecosystems. Publ. No. FWS/OBS-78/14, Jan. 1978. National Stream Alteration Project, Office of Biological Services, Fish and Wildlife Service, U. S. Dept. of Interior, Washington, D. C.

Wharton, Charles H., 1971. Statement for the Hearings on Dredging, Modification, and Channelization of Rivers and Streams. Congress of the U. S., Subcommittee on Conservation and Natural Resources, Committee on Government Operation. 14 June, 1971, Washington, D. C.

Wilkinson, John M., 1975. Channelization in The Integrity of Water, USEPA Symposium, March 10-12, 1975, Washington, D. C.

FIGURE 1

Theoretical diagrammatic representation of certain changes in structure and function in running water ecosystems from headwater to the mouth (stream order shown at the left). The organisms pictured are merely possible representatives of the functional groups shown. The decreasing direct influence of the adjacent terrestrial component of the watershed and increasing importance of upstream import from the headwaters (Orders 1-3) to the mouth is a basic feature of the system. Coupled with this is a decrease in shredders and an increased dominance of collectors. The mid-region of the river system is seen as the major region of primary production (growth of green plants) and associated grazer populations (Orders 4-6). The lower reaches become more turbid with increased importance of plankton (Orders 7-12). The fishes are dominated by invertivores in the headwaters, and piscivores in the larger sections with planktivores important in the highest order (Marzolf, 1978).



(Marzolf, 1978)

TABLE 1.

SUMMARY OF POTENTIAL EFFECTS OF CLEARING AND SNAGGING OF STREAM ECOSYSTEMS (MARZOLF, 1978)

PHYSICAL MODIFICATION	BIOLOGICAL CONSEQUENCES
Reduction of physical habitat diversity through decreasing hydraulic roughness of stream channels	Moves decomposition of organic matter (leaves, twigs) downstream
	Reduces benthos production
	Reduces spawning and nursery habitat
	Reduces fish cover and shelter
	Disrupts fish territoriality and orientation
	Reduces plankton production by reducing amount of quiet water
Removal of canopy	Increases light which increases stream temperature and encourages growth of benthic algae and macrophyte growth
	Decreases organic matter (leaves, branches) input from terrestrial vegetation
Changes of stream substrate	Changes production and kinds of benthic algae and macrophytes
	Changes distribution and species composition of benthic microinvertebrates
Removal of snags, logs, and shoreline vegetation	Reduces habitat for nest - and case - building macroinvertebrates
	Reduces habitat for accumulation and decomposition of organic matter; results in less food for microinvertebrates

Reduces diversity and amount of fish food

Reduces fish cover and spawning habitat

Disrupts fish territoriality and orientation

Implementing The CEQ Regulations

Michael Kane, Staff Member
CEQ, Washington, D. C.

Introduction

On November 29, 1978, the Council on Environmental Quality issued regulations implementing the procedural provisions of the National Environmental Policy Act ("NEPA regulations"). The regulations are binding on all Federal agencies and were developed through interagency and public consultation, review and comment. The regulations appear at Pages 55978-56007 of Volume 43 of the Federal Register.

Section 1507.3 of the NEPA regulations provides that each agency shall adopt procedures implementing the NEPA regulations by July 30, 1979, ("agency implementing procedures").* The purpose of this memorandum is to provide Federal agencies with general guidance for developing these implementing procedures.**

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* Implementing procedures for programs administered under Section 102(2)(D) of NEPA or under Section 104(h) of the Housing and Community Development Act of 1974 must also be adopted by July 30, 1979. However, Section 1506.12 provides that the procedures for these programs will not become effective until November 30, 1979 -- four months after the deadline for their adoption. This four month hiatus has been established to allow State and local agencies involved in these programs to adjust their decision making to new implementing procedures. On a separate point, Section 1506.12(a) also provides that any agency may proceed under these regulations at an earlier time. By this we mean that any agency may either adopt and place into effect implementing procedures before the July 30, 1979, deadline, if approved by the Council, or for selected proposals, conduct its environmental reviews under the regulations before that time. Agencies administering programs under Section 102(2)(D) of NEPA or under Section 104(h) of the Housing and Community Development Act of 1974 may proceed under the regulations before November 30, 1979, with the consent of the State or local agencies involved.

** In developing this memorandum we have consulted with, circulated drafts to, and met with a number of the NEPA liaisons from agencies which prepare significant numbers of EIS's. We appreciate their contribution.

Members of the Council's staff will be contacting you in the near future regarding a schedule for developing implementing procedures. We would like to become involved in your efforts early to avoid a last-minute crunch later in the year. We have attached as Appendix A a list of our staff members who will be available for consultation throughout the process.

Procedural Considerations

In developing implementing procedures under the NEPA regulations, agencies should bear in mind the following important considerations: First, the purpose of agency procedures is both to provide agency personnel with additional, more specific direction for implementing the procedural provisions of NEPA and to inform the public and State and local officials of how the NEPA regulations will be implemented in agency decision-making. Agency procedures should, therefore, provide Federal personnel with the direction they need to implement NEPA on a day-to-day basis. The procedures must also provide a clear and uncomplicated picture of what those outside the Federal government may do to become involved in the environmental review process under NEPA.

Second, the NEPA regulations provide that each agency shall as necessary adopt procedures to supplement the regulations (Section 1507.3). Major agency submits are also encouraged (with the consent of the department) to adopt their own procedures. Departmental procedures would then address issues of general concern for all of its agencies; an individual agency's procedures would address the particulars of its own planning and decision-making.

Third, agency implementing procedures are not required to, nor is it desirable that they address every section of the regulations. The sections which must be addressed are identified in Section 1507.3(b). This is detailed in the "NEPA Procedures Checklist" enclosed herewith. Agencies are encouraged to address other sections where this would further implementation of the NEPA regulations.

Fourth, while the format for implementing procedures is largely a matter of agency discretion, the following points should be noted:

(1) By Executive Order 11991, the President directed the Council to establish a single and definitive set of uniform standards for implementing NEPA government-wide. Therefore, while agencies may quote the regulations in their implementing procedures, they shall not attempt to restate or otherwise paraphrase the regulations (Section 1507.3(a). Agencies shall continue themselves to procedures which make the standards established by the NEPA regulations effective in the context of their decision-making.

(2) Agencies may quote from the regulations to provide a context for implementing procedures. For example, an agency may quote from Section 1508.9 on environmental assessment procedures. In addition, agencies may produce a single, self-contained document containing quotations from the NEPA regulations so that agency personnel need not refer back and forth from NEPA regulations to implementing procedures in conducting environmental reviews. However, whenever the NEPA regulations are quoted they must be quoted verbatim, properly cited, and set off in some fashion (e.g., italics, bold faced type) so that the reader can readily distinguish between the NEPA regulations and agency implementing procedures. You will understand the competing considerations that guide us here. On the one hand we intend the agency procedures to be the minimum length possible consistent with the regulations and this memorandum. On the other hand, we do not want to place readers in the position of having constantly to refer to other documents.

(3) Implementing procedures should cross-reference relevant sections of the regulations where they are not quoted in full. It is important to link agency procedures with corresponding sections in the NEPA regulations so that agency personnel will have complete picture of the standards which govern the environmental review process.

(4) Agency implementing procedures should, where practicable, follow the same sequence of procedural steps appearing in the NEPA regulations. It will be easier to work with both documents if the procedures and the regulations take a parallel approach.

Fifth, there is no need to include every detail of agency decision-making in the implementing procedures. The NEPA regulations contemplate the publication of further explanatory guidance with specific information that may not be appropriate for agency implementing procedures (Section 1507.3(a). This further guidance, which may be in the form of an operating manual, administrative directives, explanatory bulletins, and other publications, must also be reviewed by the Council and made available to the public.

Sixth, agencies with similar programs should consult with each other and the Council to coordinate their implementing procedures, especially for programs requesting similar information from applicants (Section 1507.3(a). Opportunities exist to improve the environmental review process through a consistent approach to similar Federal programs. It is important that agencies combine efforts in developing the approach and ensure that once developed, it is uniformly adopted in agency implementing precedures. We should be contacted for this purpose.

Finally, in developing implementing procedures, agencies must allow time for review by the Council and the public. Section 1507.3(a) of the NEPA regulations establishes a three-step process leading to adoption of final procedures by July 30, 1979: Agencies shall consult with the Council in developing proposed implementing procedures. Agencies shall then publish their proposed procedures in the Federal Register for public review and comment. As the last step, and following changes made in response to comments received during the review period, agencies shall submit the final version of their proposed procedures for review by the Council for conformity with the Act and the NEPA regulations. The Council will complete its review within 30 days. The Council may thereafter make public the results of its reviews.

To ensure that this process is concluded by July 30, 1979, the Council recommends that agencies publish their proposed procedures in the Federal Register for comment no later than April 1, 1979, and submit by June 1, 1979, the final version of the procedures to the Council for review. Please note that the regulations go into effect and are binding throughout the government on July 30, 1979, regardless of whether an individual agency has adopted its procedures.

Once in effect, agency implementing procedures shall be filed with the Council, published in the Federal Register, and made readily available to the public. Please note that Section 1507.3(a) of the regulations requires agencies continuously to review their policies and procedures and in consultation with the Council to revise them as necessary to ensure full compliance with the purposes and provisions of the Act.

APPENDIX A

January 19, 1979

CEQ Staff Contacts
(The legal staff should be the first point of contact.)

Major Agencies	Policy Staff	Legal Staff
ACTION	Baldwin	Nicholas
Advisory Council on Historic Preservation	Baldwin	Nicholas
Agriculture	Smythe	Jamieson
Animal and Plant Health Inspection Serv.	Smythe	Jamieson
Farmers Home Administration	Kane	Jamieson
Forest Service	Williams	Jamieson
Rural Electrification Administration	Brubaker	Jamieson
Science and Education Administration	Smythe	Jamieson
Soil Conservation Service	Smythe	Jamieson
Appalachian Regional Commission	Smythe	Jamieson
Arms Control & Disarmament Agency	Brubaker	Knight
Central Intelligence Agency	Brubaker	Knight
Civil Aeronautics Board	Kane	Nicholas
Commerce	Kane	Knight
Economic Development Administration	Kane	Knight
National Oceanic & Atmospheric Admin.	Gillman	Knight
Community Services Administration	Kane	Nicholas
Consumer Product Safety Commission	Bastian	Nicholas
Defense	Baldwin	Knight
Air Force	Baldwin	Knight
Army	Baldwin	Knight
Corps of Engineers (Civil Works)	Smythe	Jamieson
Navy	Baldwin	Knight

Energy	MacKenzie	Jamieson
Bonneville Power Administration	MacKenzie	Jamieson
Federal Energy Regulatory Commission	Brubaker	Jamieson
Environmental Protection Agency	Burmaster	Knight
Executive Office of the President	Strohbehn	Nicholas
Office of Management and Budget	Strohbehn	Nicholas
Export-Import Bank	Bennsky	Knight
Federal Communications Commission	Kane	Nicholas
Federal Maritime Administration	Kane	Nicholas
Federal Reserve System, Federal Deposit Insurance Corporation, Federal Home Loan Bank Board, Federal Savings & Loan Insurance Corporation, National Credit Union Administration, Farm Credit Administration	Kane	Nicholas
Federal Trade Commission	Kane	Nicholas
General Services Administration	Kane	Nicholas
Health, Education & Welfare	Karch	Nicholas
Food & Drug Administration	Karch	Nicholas
Indian Health Service	Kane	Nicholas
National Institutes of Health	Karch	Nicholas
Housing and Urban Development	Kane	Nicholas
Interior	Smythe	Jamieson
Bureau of Indian Affairs	Smythe	Jamieson
Bureau of Land Management	Williams	Jamieson
Bureau of Mines	Smythe	Jamieson
Bureau of Reclamation	Smythe	Jamieson
Fish and Wildlife Service	Baldwin	Jamieson
Geological Survey	Smythe	Jamieson
Heritage Conservation & Recreation Serv.	Baldwin	Jamieson
National Park Service	Williams	Jamieson

Interior (continued)		
Office of Surface Mining Control and Reclamation	Smythe	Jamieson
Interstate Commerce Commission	Kane	Nicholas
Justice	See legal staff.	Knight
Law Enforcement Assistance Admin.	Kane	Knight
Labor	Karch	Nicholas
Marine Mammal Commission	Gillman	Knight
METRO	Baldwin	Nicholas
National Aeronautics & Space Admin.	Buffington	Nicholas
National Capital Planning Commission	Baldwin	Nicholas
National Science Foundation	Brubaker	Nicholas
Nuclear Regulatory Commission	Brubaker	Jamieson
Overseas Private Investment Corporation	Bennsky	Knight
Pennsylvania Avenue Development Corp.	Baldwin	Nicholas
Postal Service	Kane	Nicholas
Securities & Exchange Commission	Kane	Nicholas
Small Business Administration	Kane	Nicholas
Smithsonian	Smythe	Nicholas
State	Bennsky	Knight
Agency for International Development	Bennsky	Knight
Tennessee Valley Authority	Smythe	Jamieson
Transportation	Kane	Knight
Coast Guard	Kane	Knight
Federal Aviation Administration	Kane	Knight
Federal Highway Administration	Kane	Knight
Federal Railroad Administration	Kane	Knight

Transportation (continued)		
National Highway Traffic Safety Admin.	Kane	Knight
Urban Mass Transportation Admin.	Kane	Knight
Treasury	Kane	Knight
Veterans Administration	Kane	Nicholas
Water Resources Council	Smythe	Jamieson
River Basin Commissions	Smythe	Jamieson

NOTE: This list of agencies is not necessarily comprehensive. Agencies not listed above should contact Jim Jamieson in the Office of the General Counsel at CEQ (Tel. 395-5750).

	Telephone Numbers
Malcolm Baldwin	395-4522
Carroll Bastian	395-4980
George Bennsky	395-5780
Gerry Brubaker	395-4946
Doug Buffington	395-5760
David Burmaster	395-4904
Kitty Gillman	395-5780
Jim Jamieson	395-5750
Nate Karch	395-4980
Foster Knight	395-4616
Michael Kane	395-4522
Jim MacKenzie	395-4946
Bob Nicholas	395-4616
Bob Smythe	395-4540
Larry Williams	395-4540

CEQ Regulations	Agency Procedures	
	Relevant Sections	Evaluation

This Checklist will serve as a basis for evaluating agency implementing procedures. Many sections of the regulations need no explanation by agencies. Those sections of the regulations which must be addressed in agency procedures are marked with asterisks. Other sections described in the Checklist or appearing in the regulations may be addressed, at the option of an agency, to further provide for implementation of the NEPA regulations in the agency's environmental review process. The sections below are ones which either must be addressed in implementing procedures or which the Council believes are especially pertinent to the procedures.

PART 1500 -- PURPOSE, POLICY, AND MANDATE

Part 1500 establishes the purpose, policy and mandate for the NEPA regulations. Agency implementing procedures must be evaluated in this light. The following sections provide a general basis for this evaluation. We intend not that these requirements be repeated in the agency procedures, but that the procedures be written in light of these purposes, policies and mandates.

SECTION 1500.1 PURPOSE

Section 1500.1(a) states that

> "The National Environmental Policy Act (NEPA) is our basic national charter for protection of the environment. It establishes policy, sets goals (section 101), and provides means (section 102) for carrying out the policy. Section 102(2) contains 'action-forcing' provisions to make sure that federal agencies act according to the letter and spirit of the Act. The regulations that follow implement Section 102(2). Their purpose is to tell federal agencies what they must do to comply with the procedures and achieve the goals of the Act. The President, the federal agencies, and the courts share responsibility for enforcing the Act so as to achieve the substantive requirements of section 101."

	Relevant Sections	Evaluation

This and other statements of purpose in Section 1500.1 place the procedural requirements of NEPA in the context of national environmental policies and goals and establish guiding principles for the development of agency implementing procedures.

SECTION 1500.4 REDUCING PAPERWORK

Agencies shall reduce excessive paperwork by:

(a) Reducing the length of EISs (Section 1502.2(c)) by means such as page limits (Sections 1501.7(b)(1) and 1502.7).

(b) Preparing analytic rather than encyclopedic EISs (Section 1502.2(a)).

(c) Discussing only briefly issues other than significant ones (Section 1502.2(b)).

(d) Writing EISs in plain language (Section 1502.8).

(e) Following a clear format for EISs (Section 1502.10).

(f) Emphasizing the portions of the EIS that are useful (Sections 1502.14 and 1502.15) and reducing emphasis on background material (Section 1502.16).

(g) Using the scoping process to identify significant issues, deemphasize insignificant issues, and to narrow the scope of the EIS process (Section 1501.7).

(h) Summarizing the EIS (Section 1502.12) and circulating the summary if the EIS is unusually long (Section 1502.19).

	Relevant Sections	Evaluation
(i) Using program, policy, or plan EISs and tiering to eliminate repetition (Sections 1502.4 and 1502.20).		
(j) Incorporating by reference (Section 1502.21).		
(k) Integrating NEPA requirements with other environmental review and consultation requirements (Section 1502.25).		
(l) Requiring comments to be specific (Section 1503.3).		
(m) Attaching and circulating only changes to the draft EIS rather than the entire statement when changes are minor (Section 1503.4(c)).		
(n) Eliminating duplication with State and local procedures, by providing for joint preparation (Section 1506.2), and with other Federal procedures, by providing for adoption of EISs (Section 1506.3).		
(o) Combining environmental documents with other documents (Section 1506.4).		
(p) Using categorical exclusions (Section 1508.4).		
(q) Using findings of no significant impact (Section 1508.13).		
SECTION 1500.5 REDUCING DELAY		
Agencies shall reduce delay by:		
(a) Integrating the NEPA process into early planning (Section 1501.2).		
(b) Emphasizing interagency cooperation before the EIS is prepared (Section 1501.6).		
(c) Insuring rapid resolution of lead agency disputes (Section 1501.5).		
(d) Using the scoping process for early identification of the real issues (Section 1501.7).		

(e) Establishing appropriate time limits (Sections 1501.7(b)(2) and 1501.8).

(f) Preparing EISs early in the process (Section 1502.5).

(g) Integrating NEPA requirements with other environmental review and consultation requirements (Section 1502.25).

(h) Eliminating duplication with State and local procedures by providing for joint preparation (Section 1506.2) and with other Federal procedures by providing for adoption of EISs (Section 1506.3).

(i) Combining environmental documents with other documents (Section 1506.4).

(j) Using accelerated procedures for proposals for legislation (Section 1506.8).

(k) Using categorical exclusions (Section 1508.4).

(l) Using findings of no significant impact (Section 1508.13).

SECTION 1500.6 AGENCY AUTHORITY

Each agency shall interpret the provisions of the Act as a supplement to its existing authority and as a mandate to view traditional policies and missions in the light of the Act's national environmental objectives.

Agencies shall review their policies, procedures, and regulations accordingly and revise them as necessary to insure full compliance with the purposes and provisions of the Act.

PART 1501 -- NEPA AND AGENCY PLANNING

SECTION 1501.2 APPLY NEPA EARLY IN THE PROCESS

Agencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts. Each agency shall:

* * * *

Relevant Sections | Evaluati

	Relevant Sections	Evaluation
(b) Identify environmental effects and values in adequate detail so they can be compared to economic and technical analyses. Environmental documents and appropriate analyses shall be circulated and reviewed at the same time as other planning documents.		
(c) Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources as provided by section 102(2)(E) of the Act.		
*** (d) Provide for cases where actions are planned by private applicants or other non-Federal entities before Federal involvement so that:		
(1) Policies or designated staff are available to advise potential applicants of studies or other information foreseeably required for later Federal action.		
(2) The Federal agency consults early with appropriate State and local agencies and Indian tribes and with interested private persons and organizations when its own involvement is reasonably foreseeable.		
(3) The Federal agency commences its NEPA process at the earliest possible time.		
[Note: To fulfill these requirements, agency implementing procedures must accomplish the following:		
(a) Identify types of actions initiated by private parties, State and local agencies and other non-governmental entities for which agency involvement is reasonably foreseeable;		
(b) Establish policies for advising potential applicants of studies or other information foreseeably required for later Federal action including the NEPA process. Such policies should provide for full public notice that agency advice on such matters is available, detailed written publications containing that advice, and early consultation in cases where agency involvement is reasonably foreseeable; and		

	Relevant Sections	Evaluation

(c) Designate agency personnel responsible for making the identifications and implementing the policies under subsections (a) and (b), above.]

SECTION 1501.3 WHEN TO PREPARE AN ENVIRONMENTAL ASSESSMENT

(a) Agencies shall prepare an environmental assessment (Section. 1508.9) when necessary under the procedures adopted by individual agencies to supplement these regulations as described in Section 1507.3.

SECTION 1501.4 WHETHER TO PREPARE AN ENVIRONMENTAL IMPACT STATEMENT

In determining whether to prepare an environmental impact statement the Federal agency shall:

*** (a) Determine under its procedures supplementing these regulations (described in Section 1507.3) whether the proposal is one which:

(1) Normally requires an environmental impact statement, or

(2) Normally does not require either an environmental impact statement or an environmental assessment (categorical exclusion).

* * * *

(e) Prepare a finding of no significant impact (Section 1508.13), if the agency determines on the basis of the environmental assessment not to prepare a statement.

(1) The agency shall make the finding of no significant impact available to the affected public as specified in Section 1506.6.

(2) In certain limited circumstances which the agency may cover in its procedures under Section 1507.3, the agency shall make the finding of no significant impact available for public review (including State and areawide clearinghouses) for 30 days before the agency makes its final determination whether to prepare an environmental impact statement and before the action may begin. The circumstances are:

	Relevant Sections	Evaluation

(i) The proposed action is, or is closely similar to, one which normally requires the preparation of an environmental impact statement under the procedures adopted by the agency pursuant to Section 1507.3, or

(ii) The nature of the proposed action is one without precedent.

SECTION 1501.5 LEAD AGENCIES

Subsection (d) provides for written requests to potential lead agencies for a lead agency designation. Subsection (e) provides that when a request for lead agency designation is filed with the Council, a copy of that request shall be transmitted to each potential lead agency. Agency procedures should identify the person or office where such requests should be mailed.

SECTION 1501.6 COOPERATING AGENCIES.

Each cooperating agency shall make available staff support at the lead agency's request to enhance the latter's interdisciplinary capability (Section 1501.6(b)(4)).

[Note: Some agencies have already made arrangements among themselves for cooperation in the environmental review process. Agency implementing procedures should describe the arrangements which exist, identify letters of agreement, memoranda of understanding and other written documents reflecting the arrangements, and indicate how these documents may be obtained by members of the public.]

SECTION 1501.7 SCOPING.

(a) As part of the scoping process the lead agency shall:

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Relevant Sections	Evaluation

(6) Identify other environmental review and consultation requirements so the lead and cooperating agencies may prepare other required analyses and studies concurrently with, and integrated with, the environmental impact statement as provided in Section 1502.25.

(b) As part of the scoping process the lead agency may;

* * * *

(3) Adopt procedures under Section 1507.3 to combine its environmental assessment process with its scoping process.

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SECTION 1502.4 MAJOR FEDERAL ACTIONS REQUIRING THE PREPARATION OF ENVIRONMENTAL IMPACT STATEMENTS

Subsection (a) of Section 1502.4 states that "[p]roposals or parts of proposals which are related to each other closely enough to be in effect, a single course of action shall be evaluated in a single impact statement." Subsection (b) further states that "[e]nvironmental impact statements may be prepared, and are sometimes required, for broad Federal actions ... (Section 1508.18)". Subsection (c) sets forth several ways in which proposals may be evaluated when preparing EISs on broad actions.

Agency implementing procedures should identify categories of broad agency actions for which a single EIS will be prepared as provided in this section.

SECTION 1502.5 TIMING.

An agency shall commence preparation of an environmental impact statement as close as possible to the time the agency is developing or is presented with a proposal (Section 1508.23) so that preparation can be completed in time for the final statement to be included in any recommendation or report on the proposal. The statement shall be prepared early enough so that it can serve practically as an important contribution to the decision-making process and will not be used to rationalize or justify decisions already made (Sections 1500.2(c), 1501.2, and 1502.2). For instance:

	Relevant Sections	Evaluation

(a) For projects directly undertaken by Federal agencies the environmental impact statement shall be prepared at the feasibility analysis (go-no go) stage and may be supplemented at a later stage if necessary.

(b) For applications to the agency appropriate environmental assessments or statements shall be commenced no later than immediately after the application is received. Federal agencies are encouraged to begin preparation of such assessments or statements earlier, preferably jointly with applicable State or local agencies.

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SECTION 1502.6 INTERDISCIPLINARY PREPARATION.

The disciplines of EIS preparers shall be appropriate to the scope and issues identified in the scoping process (Section 1501.7). (See Section 1502.17.)

SECTION 1502.9 DRAFT, FINAL, AND SUPPLEMENTAL STATEMENTS.

*** This section states that agencies shall adopt procedures for introducing a supplement into its formal administrative record, if such a record exists (Subsection (c)(3)).

SECTION 1502.20 TIERING

Section 1502.20 describes the concept of tiering in the following terms:

> Whenever a broad environmental impact statement has been prepared (such as a program or policy statement) and a subsequent statement or environmental assessment is then prepared on an action included within the entire program or policy (such as a site specific action) the subsequent statement or environmental assessment need only summarize the issues discussed in the broader statement and incorporate discussions from the broader statement by reference and shall concentrate on the issues specific to the subsequent action.

Relevant Sections	Evaluation

Section 1508.28 describes the circumstances in which tiering is appropriate.

Agency implementing procedures should identify categories of agency actions for which tiering will be employed.

SECTION 1502.23 COST-BENEFIT ANALYSIS

An environmental impact statement should indicate those considerations, including factors not related to environmental quality, which are likely to be relevant and important to a decision.

SECTION 1502.25 ENVIRONMENTAL REVIEW AND CONSULTATION REQUIREMENTS.

(a) To the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with environmental impact analyses and related surveys and studies required by the Fish and Wildlife Coordination Act (16 U.S.C. Sec. 661 et seq.) the National Historic Preservation Act of 1966 (16 U.S.C. Sec. 470 et seq.), the Endangered Species Act of 1973 (16 U.S.C. Sec. 1531 et seq.), and other environmental review laws and executive orders.

[Note: Refer to Appendix C of the Memorandum For NEPA Liaisons for a list of the major environmental review and consultation requirements. Agency implementing procedures should identify those requirements that apply to agency actions, and the analyses, surveys and studies which they entail. The implementing procedures should also describe the process by which these requirements are met and indicate how this process will be made to run concurrently with, and integrated with, the NEPA process in terms of timing, agency personnel involved, public review and comment, publication and use of documents, research and analysis, and so forth. However, agencies should not allow the incorporation of these other more narrowly focused environmental review and consultation requirements to detract from the comprehensive approach required by NEPA.]

Relevant Sections	Evaluatio

PART 1505 -- NEPA AND AGENCY DECISIONMAKING

SECTION 1505.1 AGENCY DECISIONMAKING PROCEDURES

*** Agencies shall adopt procedures (Section 1507.3) to ensure that decisions are made in accordance with the policies and purposes of the Act. Such procedures shall include but not be limited to:

*** (a) Implementing procedures under section 102(2) to achieve the requirements of sections 101 and 102(1).

*** (b) Designating the major decision points for the agency's principal programs likely to have a significant effect on the human environment and assuring that the NEPA process corresponds with them.

[Note: The NEPA regulations are designed to ensure that the data and analysis developed during the environmental review process is made available to agency planners and decisionmakers at the time when it will be of most value to them in formulating, reviewing and deciding upon proposals for major Federal action. See e.g. Sections 1501.2(b); 1502.5(a), (b); 1505.1(d), (e).

Agency implementing procedures must serve as the vehicle for ensuring that critical issues of timing and integration are properly established in agency planning and decisionmaking. It is for this reason that Section 1505.1(b) provides that agency implementing procedures shall include "[d]esignating the major decision points for the agency's principal programs likely to have a significant effect on the human environment assuring that the NEPA process corresponds with them."

In order to conform with this section, an agency's procedures should include such information as a description of when the NEPA process starts, i.e "the earliest possible time;" a designation of major decision points; an identification of the official making the major decisions; a description of what is decided at each major decision point; and a description of the environmental data and analysis that are to be made available to the decisionmaker at each major decision point.]

Charts and other graphic aids may be useful in presenting this material.

	Relevant Sections	Evaluation

*** (c) Requiring that relevant environmental documents, comments, and responses be part of the record in formal rulemaking or adjudicatory proceedings.

*** (d) Requiring that relevant environmental documents, comments, and responses accompany the proposal through existing agency review processes so that agency officials use the statement in making decisions.

*** (e) Requiring that the alternatives considered by the decisionmaker are encompassed by the range of alternatives discussed in the relevant environmental documents and that the decisionmaker consider the alternatives described in the environmental impact statement. If another decision document accompanies the relevant environmental documents to the decisionmaker, agencies are encouraged to make available to the public before the decision is made any part of that document that relates to the comparison of alternatives.

SECTION 1505.2 RECORD OF DECISION IN CASES REQUIRING ENVIRONMENTAL IMPACT STATEMENTS

Section 1505.2 requires agencies to prepare a concise public record of decision. The record shall, among other things, state what the decision was, identify all alternatives considered, and state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. Agencies are encouraged to address the requirement for a record of decision in their implementing procedures.

SECTION 1505.3 IMPLEMENTING THE DECISION

Section 1505.3 of the NEPA regulations states that

> "Agencies may provide for monitoring to assure that their decisions are carried out and should do so in important cases. Mitigation (Sec. 1505.2(c)) and other conditions established in the environmental impact statement or during its review and

	Relevant Sections	Evaluation

committed as part of the decision shall be implemented by the lead agency or other appropriate consenting agency. The lead agency shall:

"(a) Include appropriate conditions in grants, permits or other approvals.

"(b) Condition funding of actions on mitigation.

"(c) Upon request, inform cooperating or commenting agencies on progress in carrying out mitigation measures which they have proposed and which were adopted by the agency making the decision.

"(d) Upon request, make available to the public the results of relevant monitoring."

Agencies are encouraged to address these requirements in their implementing procedures.

PART 1506 -- OTHER REQUIREMENTS OF NEPA

SECTION 1506.2 ELIMINATION OF DUPLICATION WITH STATE AND LOCAL PROCEDURES

Subsection (b) of Section 1506.2 mandates Federal agency cooperation with State and local agencies to the "fullest extent possible" and describes several forms which this cooperation could take. Agency implementing procedures should identify categories of Federal action where such cooperation is possible and describe the steps which will be taken to cooperate with State and local agencies in such cases.

Subsection (c) mandates cooperation to reduce duplication between NEPA and comparable State and local requirements. This cooperation shall include, to the fullest extent possible, joint EISs. Agency implementing procedures should describe how the requirements of this subsection will be met when the State and local requirements for a proposal are comparable to NEPA.

	Relevant Sections	Evaluation

SECTION 1506.4 COMBINING DOCUMENTS

This section states that any environmental document in compliance with NEPA may be combined with any other agency document to reduce duplication and paperwork. Agencies should describe the circumstances in which this will be done.

SECTION 1506.5 AGENCY RESPONSIBILITY

(a) Information

Agencies must assist applicants by outlining the types of information required of them. Agencies shall independently evaluate the information submitted by the applicant and include the names of persons responsible for the evaluation in the list of preparers (Section 1502.17).

(b) Environmental assessments

Agencies are required to make their own evaluation of issues and take responsibility for the scope and content of environmental assessments prepared by applicants.

(c) Environmental impact statements

Contractors shall be chosen solely by Federal agencies to avoid any conflict of interest.

Agencies shall prepare disclosure statements for execution by contractors specifying that the contractor has no financial or other interest in the outcome of the project.

The responsible Federal official shall independently evaluate the EIS and take responsibility for its scope and contents.

	Relevant Sections	Evaluation

SECTION 1506.6 PUBLIC INVOLVEMENT

This section provides that agencies shall

-- make diligent efforts to involve the public in preparing and implementing their NEPA procedures (subsection (a));

-- provide public notice of NEPA related hearings and other elements of the NEPA process in prescribed ways (subsection (b));

-- hold public meetings in accordance with statutory requirements and prescribed criteria (subsection (c));

-- solicit appropriate information from the public (subsection (d));

*** -- explain in its procedures where interested persons can get information on status reports on EISs and other elements of the NEPA process (subsection (e)); and

-- make EISs and related documents available to the public under prescribed standards and without charge, to the extent practicable (subsection (f)).

[Note: Section 1506.6 is the principal section on public involvement in the NEPA process. It is imperative that it be scrupulously followed in agency implementing procedures.]

SECTION 1506.12 EFFECTIVE DATE

Subsection (a) of this section provides that

-- the regulations shall apply to the fullest extent practicable to on-going activities and environmental documents begun before the effective date;

-- the regulations do not apply to an EIS or supplement which was filed in draft form before the effective date of the regulations, i.e. July 30, 1979;

-- the Council's guidelines shall remain in effect until the regulations take effect.

	Relevant Sections	Evaluation

PART 1507 -- AGENCY COMPLIANCE

SECTION 1507.1 AGENCY COMPLIANCE

It is the intent of the regulations to allow each agency flexibility in adapting its implementing procedures to the requirements of other applicable laws.

SECTION 1507.2 AGENCY CAPABILITY TO COMPLY

Each agency shall be capable (in terms of personnel and other resources) of complying with the requirements enumerated below. Such compliance may include use of other's resources, but the using agency shall itself have sufficient capability to evaluate what others do for it. Agencies shall:

(a) Fulfill the requirements of Section 102(2)(A) of the Act to utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making which may have an impact on the human environment.

-- Agencies shall designate a person to be responsible for overall review of agency NEPA compliance.

(b) Identify methods and procedures required by Section 102(2)(B) to insure that presently unquantified environmental amenities and values may be given appropriate consideration.

(c) Prepare adequate EISs pursuant to Section 102(2)(C).

(d) Study, develop, and describe alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources regardless of whether an EIS is required for the proposal (Section 102(2)(E)).

(e) Comply with the requirements of Section 102(2)(H) that the agency initiate and utilize ecological information in the planning and development of resource-oriented projects.

	Relevant Sections	Evaluation
(f) Fulfill the requirements of Sections 102(2)(F), 102(2)(G), and 102(2)(I), of the Act and of Executive Order 11514, Protection and Enhancement of Environmental Quality, Section 2.		
SECTION 1507.3 AGENCY PROCEDURES		
Subsection (a) provides that		
-- agencies shall adopt their implementing procedures by July 30, 1979;		
-- agencies shall not paraphrase the regulations;		
-- agencies with similar programs should coordinate their procedures;		
-- agencies shall adopt procedures only after review by the Council for conformity with the Act and the regulations;		
-- agencies shall continue to review and where necessary to review their policies and procedures in order to ensure compliance with the Act;		
Section (b) provides that		
*** -- agency procedures shall include procedures required by Sections 1501.2(d), 1502.9(c)(3), 1505.1, 1506.6(e) and 1508.4 of the regulations;		
*** -- agency procedures shall include ""specific criteria" for and identification of those typical classes of actions which		
(i) normally do require EISs;		
(ii) normally do not require either an environmental assessment or an EIS, i.e. categorical exclusions as defined in section 1508.4;		
(iii) normally require an assessment but not necessarily an EIS.		

	Relevant Sections	Evaluation

[NOTE: Section 1508.18(b) of the regulations states that Federal actions tend to fall within one of four categories -- policies, plans, programs, and projects -- and gives examples of each. Agencies should use these categories in identifying typical classes of actions under this section.

[In addition, in developing specific criteria and identifying typical classes of action for similar treatment under Section 102(2)(C) of NEPA, agencies will be required to determine whether those actions may "significantly" affect the quality of the human environment. Section 1508.27 defines the term "significantly" and agencies must follow this definition.

[Moreover, Section 1508.25 of the regulations defines the term scope as consisting of "the range of actions, alternatives, and impacts to be considered in an environmental impact statement," and sets forth the factors which must be weighed in determining the scope of an EIS. For classes of action which normally require an EIS, agencies are encouraged to discuss the scope of the EIS that will be prepared.

[Finally, categorical exclusions must be explicitly qualified as required by Section 1508.4. For each such exclusion, agency implementing procedures must describe at least in general terms "the extraordinary circumstances in which a normally excluded action may have a significant environmental effect" and include a description of the procedures which would be followed by the agency in recognizing such an exception.]

(c) Agency procedures may include specific criteria for providing limited exemptions for classified proposals, as prescribed.

(d) Agency procedures may provide for periods of time other than those presented in Section 1506.10 when necessary to comply with other specific statutory requirements.

(e) Agency procedures may provide that where there is a lengthy period between the agency's decision to prepare an environmental impact statement and the time of actual preparation, the notice of intent required by Section 1501.7 may be published at a reasonable time in advance of preparation of the draft EIS.

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